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BETTER FRUIT

VOLUME XIV

JULY, 1919

NUMBER 1



Smith G. Otis (C)
Director U. S. Geological
Survey Dept. of
Inter Dept



CLUSTER OF MOORPARK APRICOTS GROWN IN A PACIFIC NORTHWEST ORCHARD

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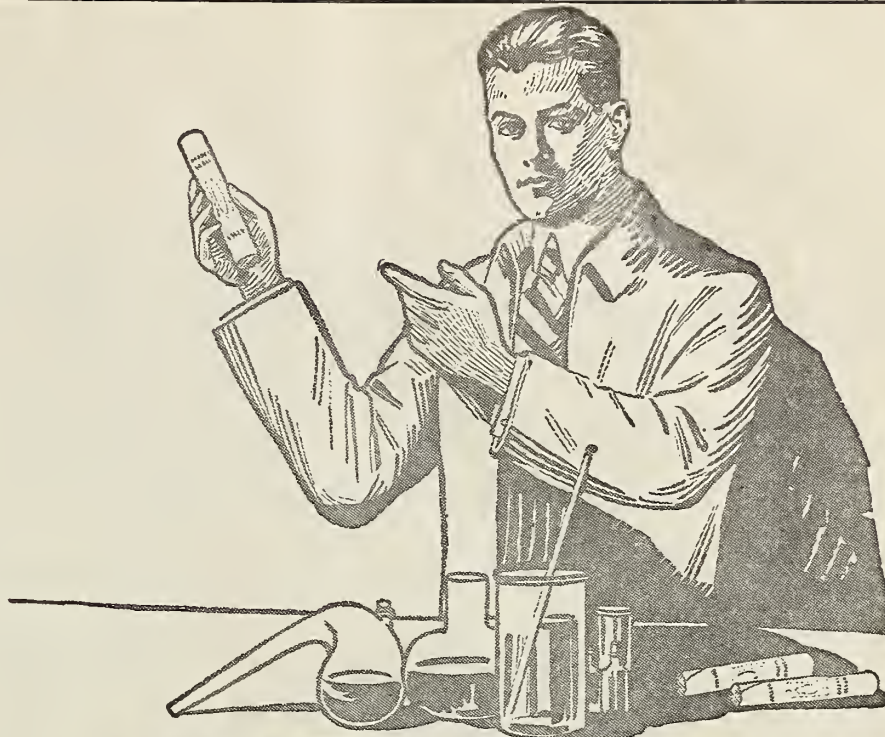
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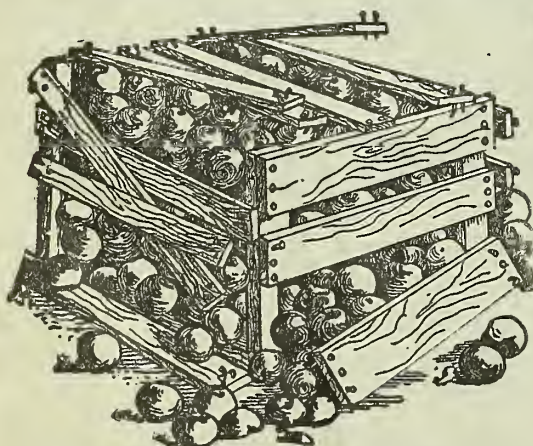
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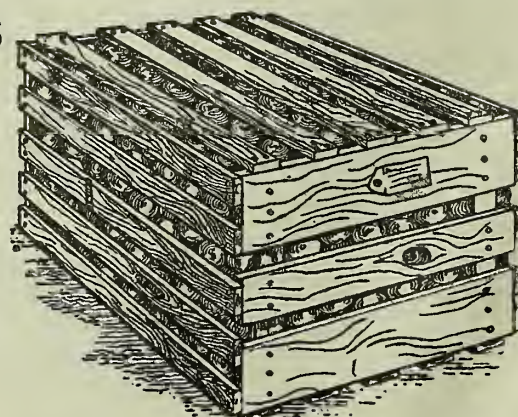
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California Leads the World in the Apricot Industry

By George P. Weldon, Chief Deputy, State Commission of Horticulture, California

APRICOTS are grown in a number of different states of the Union, but the commercial industry is practically confined to the State of California, where there are at the present time 40,886 acres in bearing and 19,444 acres that have not yet reached the bearing age. The production in 1918 was 135,787 tons, and the valuation of the fruit during the same year was \$8,800,000. Not only is this fruit little grown outside of California in America, but also in other countries of the world.

The Apricot a Popular Fruit.

The apricot is very popular for consumption in the fresh state, also for drying and canning purposes. The industry has suffered somewhat in times past in California because of the desire on the part of the growers of this fruit to get their product into the market as early as possible each season. This has resulted in much fruit being shipped before it was sufficiently matured to be of good quality. When left on the trees until ripe enough for shipment this fruit

is of splendid quality and is generally liked by the consumer.

At the present time the State Commissioner of Horticulture, in the enforcement of a standardization law, is bringing about a decided improvement as to the quality and maturity of fruit that is packed in the fresh state. The future of the industry is therefore very much more promising than it would be were it not for the fact that standardization is being compelled.

Drying and Canning.

There is no fruit that is more popular when dried than the apricot. Most of the drying is done on trays spread in a field, where the sun evaporates the moisture from the fruit. California has a decided advantage over other states in this respect, as nearly always during the fall of the year the weather is warm and dry and there is a scarcity of heavy winds, making it possible to dry the fruit outside.

The canned product is also very fine and thousands of tons of this fruit are

utilized by the canneries during each season. The larger sizes are the most popular for canning purposes.

Tree Characteristics.

In general apricot trees are hardy, making a heavy growth and bearing early. The third season after planting a crop of commercial importance is frequently harvested. Thus, there is not the uneasiness experienced in the case of this fruit as with many other fruits during a number of years while the young trees are making their growth and before any fruit is borne to help pay expenses.

One characteristic of the tree which localizes its planting to a certain extent is the early blooming habit. This fruit comes into bloom shortly after the almond, which is the earliest bloomer of all our common fruits. It is therefore necessary to select localities that are free from spring frosts, in order that the blossoms may not be injured by same.

Bearing Habits.

The fruit of the apricot is borne both on spurs and on one-year-old wood, differing from the peach, which bears entirely on one-year-old wood. Generally this fruit bears heavily, although there are certain varieties that are noted for their shy-bearing characteristics. For example, in California the Royal variety, which is more extensively grown than any other, is a very heavy and constant bearer, while the Moorpark, which is of a much larger size and consequently of greater commercial importance, is inclined to be a light bearer, and is therefore not favored for general planting. Other varieties of commercial importance are Peach, Blenheim, Tilton and Hemskirk.

Pruning.

Some trees bear so heavily that thinning becomes necessary, either by pruning or by the removal of the fruit after it has become set.

The methods of pruning the apricot do not differ widely from those used in pruning other deciduous fruits. On account of its spur-producing characteristics it is not necessary to cut as heavily as is the case with the peach, upon which it is necessary to develop



Photo by California Horticultural Commission.

A round type of apricot tree developed in a heavy producing orchard, Ventura County, California.



Photo by California Horticultural Commission.

Fine type of apricot tree illustrating very heavy growth and good spread of branches.

an abundance of new wood through heavy cutting each season.

There has been a tendency to prune too heavily in some parts of California and a flat, open type of head has been developed at the expense of productivity. One-year-old trees are pruned back to a height of 18 to 24 inches when set. The second year the framework is developed, with from three to five main branches, which are usually shortened somewhat in the spring of the year. Later pruning consists principally in thinning out the interfering branches and a slight heading in each season to prevent too rank a growth.

Production.

The average production of this fruit in California during 1918 was 3.32 tons per acre. While this average is 'way below the maximum production of the heavier bearing orchards, it takes into consideration those orchards which have just come into bearing and also other orchards which are more or less non-productive. As is the case with all other fruits, there are individuals in the apricot orchards which produce far above the average, indicating a possible production much greater than we have at the present time. Through the selection of buds from heavily bearing individuals and a process of weeding that has not been generally practiced by nurserymen and other propagators of this and other fruits, it would be possible to grow much more per acre than is being grown now.

Insect Pests and Diseases.

There are a number of diseases and insect pests which quite commonly attack the apricot tree. The brown apricot scale is one of the most common of the insects in California. Apricot gummosis, a disease somewhat resembling pear blight, has been found in two different counties of the state, but has not spread generally throughout apricot-

growing areas nor become of any great importance. A fungous disease known locally as shothole fungus causes the formation of red spots on the fruit, thus interfering with its attractiveness and consequently its market value.

There are some more or less obscure troubles of this tree that occur in the main growing sections of California which cause the collar rot, or the death of certain branches. Fungi are probably associated with most of these diseases.

The industry is gaining in popularity in California and if present prices, which are very high, prevail in the future, the returns from this fruit will be great enough to justify a considerable addition to our present acreage.

Why Do Trees Fail to Fruit?

By J. L. Stahl, Experiment Station,
Puyallup, Washington

Why trees fail to fruit is a question that comes more often from the grower of a few trees of different types and varieties of fruit than from growers of large orchards. It is a question, too, that is often hard to answer without knowing the local conditions.

Under normal conditions most fruit trees will begin blooming and setting their fruit at from four to seven years of age. Some types and varieties will often bear in the nursery row, while others will not fruit until ten or more years of age. The Duchess of Oldenburg, Yellow Transparent, Jonathan, Wealthy, Grimes and Wagener apples will usually produce good crops when the trees are young and quite small, while the King, Gravenstein and especially the Northern Spy sometimes fail to fruit or blossom until the trees are quite large.

All varieties of tree fruits are influenced by local conditions. Rich soil is apt to induce an excessive growth of wood and foliage at the expense of fruit-bud formation. This tendency can often be overcome to some extent by summer pruning or by root pruning, and it is sometimes well to try such practices until the habit of fruiting is formed.

Some varieties have the alternate or "off-year" habit of fruiting. A heavy crop may be harvested one year, followed by a light crop. Varieties which would normally bear fruit each year may acquire the alternate-year habit by neglect in pruning, spraying and cultivation. This neglect allows a starved condition of plant growth and fruit-bud development. To rejuvenate such trees careful cultural methods must be practiced.

Some trees will be covered with blossoms, but no fruit is set. This may be



Photo by California Horticultural Commission.

Apricot orchard Winter's section, Yolo County, California, showing the flat open type of head developed by pruning.

due to one of several causes. Bees are essential for pollenizing the blossoms, and if there are none in the vicinity, or if wet, cloudy days during the blooming period prevent their visits from flower to flower, only a poor set of fruit can be expected.

Still other trees set fruit and carry it until about midsummer, when it falls from the tree. This is quite common where trees are growing in sod or in soil that becomes dry during summer. Cultivating the sod or keeping the dry soil moist during midsummer will usually benefit this condition.

Many varieties of pears and plums and some varieties of cherries are quite self-sterile. They need other varieties of the same fruit planted nearby, which bloom during the same period and cross-pollinize their blossoms, to produce a good set of fruit. For instance, the Angouleme pear is often planted near the self-sterile Anjou to pollenize it. Where self-sterile trees are of bearing age it is better to top-graft branches of some of these trees with pollenizers, as several years may be gained in securing blooming wood.

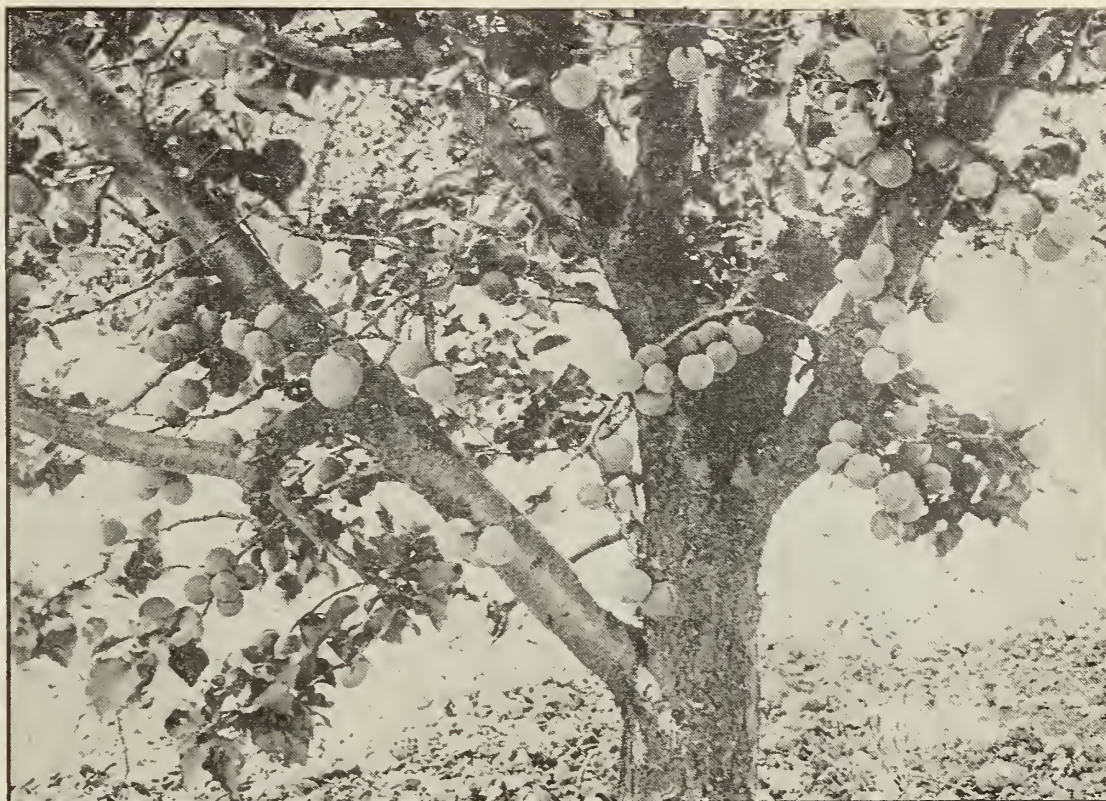


Photo by California Horticultural Commission.

Heavy producing apricot tree, illustrating fruiting wood low down in the branches.

Efficiency of Common Storage Houses for Apples

By F. W. Allen, Assistant Horticulturist Fruit Storage Investigations, Bureau of Markets, U. S. Department of Agriculture

AS prerequisites for success in storing fruit of any kind, whether in cold or common storage, it should be sufficient only to mention the necessity of having good fruit, well grown, picked at the proper stage of maturity, carefully handled and stored as soon after picking as possible. With the importance of these fundamental factors fully appreciated, the efficiency of air-cooled storages depends directly upon three things: The location of the house, its construction, and the way in which it is managed.

The terms "air-cooled" and "common" storage are synonymous, but in using the former we imply the medium by which the fruit is cooled. In this type of house there is no artificial means of refrigeration, only the natural circulation of air. The cooler the air as compared with the temperature of the house the faster the circulation and the more rapid the cooling. In most of the apple sections of the Northwest the nights are generally quite cool, even though the days are warm. Any section having these cool nights is well adapted for successful air-cooled storages. In localities where the days are warm, with little reduction in the night temperature until quite late in the fall, the value of the storage is considerably reduced. In fact, the construction of this type of house in such regions should probably be looked upon with some discouragement.

In planning a common storage we should never lose sight of the fact that the building is to be cooled entirely by air circulation. A few small windows located here and there where they will fit in most conveniently will not accomplish the purpose intended. Air circu-

lation is induced by the difference in weight of air at different temperatures. The weight of a cubic foot of warm air is less than a cubic foot of cold air. Warm air therefore seeks the higher level and cold air the lower. For this reason intake air vents should be placed in the foundation wall, in order that the cold air may enter at the lowest point. After being drawn into the house this cool air expands, its weight becomes lighter, and with the continuous flow of cold air through the intakes it seeks

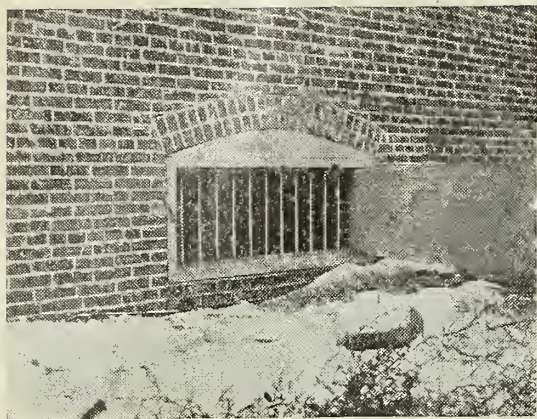
an outlet through vents or an air shaft in the ceiling. The storage room floor should be not less than eighteen inches above the ground level and of open construction. Two by fours or two by sixes spaced three-fourths of an inch apart are recommended.

With this construction the ventilating system may be compared to a heating stove, where the cold air is taken in under the grate and the heated air passes up and out through the chimney. If we desire more heat, the stove is given more draft, that is, the intake openings are made larger. In order to cool the fruit in an air storage more rapidly, we do the same thing. The same principle applies, only the difference between the temperature of the intake and outlet air in the storage house is much less than that in a stove, consequently the circulation is much slower. For this reason the air vents must be numerous and of proper size. Eighteen by thirty inches is none too large and one such opening should be provided for every ten or fifteen feet on both sides and ends of the house. In extremely large buildings inlet openings should be twenty-four by thirty-six inches. The insulated or refrigerator type of door is much better than those made of only one or two layers of boards.

The flues or outlet ventilators should lead up from the ceiling of the storage room and out through the ridge of the house. By making these from four to six feet square only one or two such outlets should be necessary for the average individual grower's house. As in the case of the inlets, these should be likewise fitted with trap doors in the ceiling of the storage room. By install-



Interior view of air ducts to a basement where the air inlet is built in the wall. With the intake doors on the outside at the level of the ground the cold air is delivered under the false floor.



Air intake on an above ground storage. Such an intake, opening directly into a basement, is improperly situated for most efficient cooling.

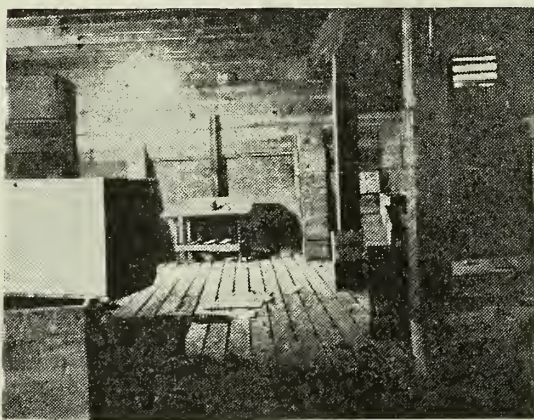
ing such a system of ventilators the house is equipped with the cooling machinery. The efficiency of this machinery will depend upon the methods of operation, as we shall see subsequently. Most air-cooled houses are too dry for the best results. Tests of methods of adding moisture to the air are now under way, but as yet the easiest and most practical plan is to wet the dirt floor and walls of the house thoroughly each fall before putting in the fruit. This may be repeated to some extent during the storage season.

The general size, arrangement and construction of the walls will depend upon the grower's particular needs and the amount of capital to be invested. Rooms for the combined use of storage and packing are undesirable. The packing room may be adjoining the storage room, or, in basement storages, the packing room is generally on the upper floor. Basements are more difficult to ventilate and cool than above-ground storages, although after once thoroughly cooled they generally maintain a more uniform temperature. In a basement house it is necessary to pipe the cold air down beneath the outside level in order that it may be delivered under the open base floor. The outlet air shafts in this case must also extend down through the room above the basement.

The walls of the house may be constructed of frame, tile, brick or concrete. In some sections storage-house walls are built of adobe brick. In selecting material and in the construction of the wall it should be remembered

that the wall is not only for the purpose of keeping out low temperatures in winter but it should keep out high temperatures in the early fall and late spring. To protect the stored fruit from injurious temperatures, extremely high and extremely low, the walls should be insulated. Cork, mineral wool and quilting are materials offered for this purpose, although all of them are expensive. For frame constructed houses and buildings with wooden linings, dry mill shavings, where they can be secured, furnish a cheap and very efficient insulation. Doors and windows and the frames surrounding them should so fit as to be practically air tight else a well insulated wall will prove of little value. If storage-room windows are necessary, they should be fitted with double sash and wooden shutters. The doors should be of the refrigerator type. During the early part of the season when it is advisable to have these doors open at night a light slat door to keep out intruders is desirable.

In the above-ground type of house it is well to provide some means of in-



Open false floor made of 2x4 or 2x6 material spaced one-half inch or more apart, enabling the cold air taken in underneath the fruit to cool it more rapidly.

sulating the ceiling. The roof is probably the warmest part of the building, and unless filled with shavings or insulated in some way is a weak part of a good storage. A light-colored roofing material such as white asbestos will be of considerable advantage in reflecting the sun's rays.

With ample means provided for ventilation or cooling the house; with walls, ceiling and other parts constructed to hold a uniform temperature, the final success of the house depends upon its management. A house built of the best materials and constructed along proper lines is of little value unless it is properly operated. Instances in no small number could be cited to prove that this is true. It is believed that it can be stated with perfect safety that less than one house out of ten is properly operated for the most efficient results. In numerous cases houses go through the season with only a pretense of management: a window is occasionally opened for a little fresh air or an oil stove is put in when the temperature reaches the danger point during the winter.

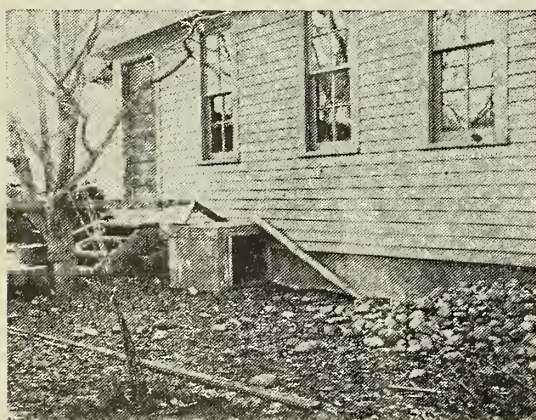
Efficient management of a cold storage for the best keeping quality of apples requires an immediate and uni-



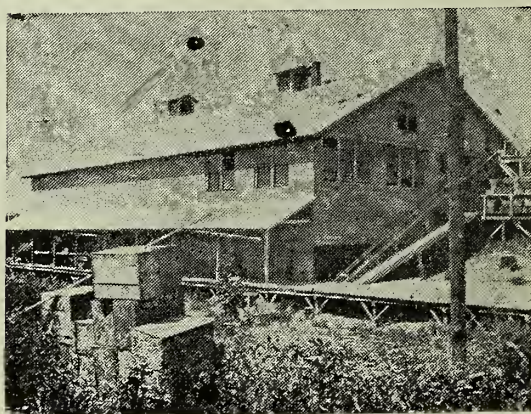
Packing room above, with storage below. The air intakes to the basement (where the shutters are lifted) are sufficiently large. The small outlet flues in the crown of the roof are entirely inadequate.

form temperature of from 30 to 32 degrees. Efficient management of an air-cooled storage requires a consistent and continuous effort to approximate these conditions. The sooner the temperature in the storage room can be brought to 32 degrees, the longer and better the fruit will keep. There is no desire to intimate that air-cooled storages are equal to cold storages for long keeping, for this is not the case. However, with proper management in order to reduce the temperature earlier in the fall and to hold it near the freezing point throughout the winter, quite different results will be obtained than those generally secured. This statement is made after observing fruit and keeping many records in houses of various growers. Good methods and good keeping quality go hand in hand.

One or more accurate thermometers are essential for the successful management of a storage house. They should be tested at 32 degrees in crushed ice to see if they record the proper temperature. Place these thermometers in different parts of the house and consult them once or twice daily—not to see how cold the house is but to see how hot it is. Whenever the temperature of the house becomes warmer than the air outside, turn on all drafts, open the ventilators, both top and bottom, and allow as much air to pass through the house as possible. As soon as these temperature conditions change close all the ventilators and allow no warm air to enter. As a general rule, to follow these instructions means that early in



Air intake to a basement storage where the air duct is built on the outside. Such openings should be fitted with airtight doors and be located about fifteen feet apart on the sides and ends of the house.



A three-story packing and storage house. The packing room containing the windows is entirely separate from the storage, a very desirable feature. The air intakes are located under the loading platform. Note the two large outlet flues.

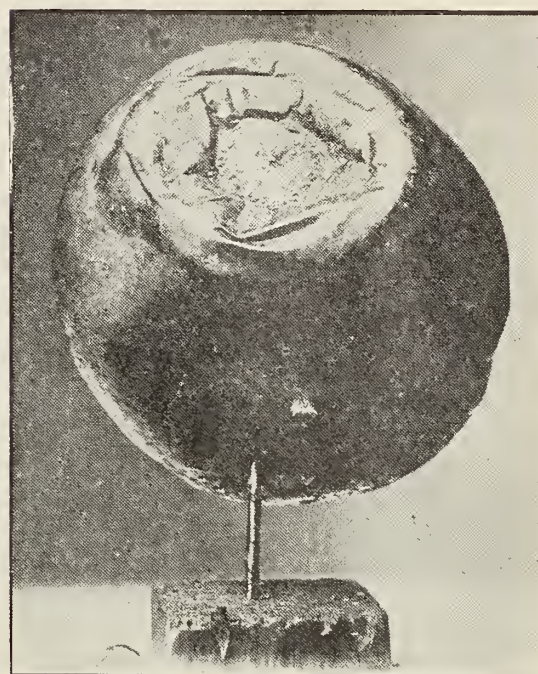
the season all ventilators should be opened in the evening and closed early the following morning. The night air is cool, and within a short time after harvest it drops below the freezing point. This air will cool the storage, and quick cooling means better keeping quality. If, however, the vents are left open both day and night all advantage of the cool night air is lost during the day. This is the basis upon which many houses are operated, but it is not good management.

In answer to the statement sometimes given that it is difficult to keep the storage closed during the day when the fruit is being harvested, it might be suggested that in so far as possible the fruit should be allowed to remain under the trees during the night and should be hauled in early the following morning. This method has the double advantage of getting cool fruit into a cool room. Where it must be brought in during the heat of the day it might be left on the platform over night. Either of these methods is preferable to putting warm fruit directly in the storage room. If

this method cannot be avoided the boxes should be taken in on a conveyor which passes through a small opening in the wall. This will allow much less warm air to enter the storage room than would come through a large door. The thermometers should be watched and the temperature kept on the decline. Each extra degree of heat in the storage early in the season means several days off the life of the apple next spring. The keeping quality of the apple is lost in the fall, not in the spring.

As a further aid in quick cooling enough space should be left between the stacks of fruit in the storage so that the air can have free circulation around at least a part of each box. Main aisle ways in the house should be left directly in front of and above the intake windows. If fruit is stacked directly over these intakes it decreases their efficiency very much. Except in emergency cases boxes should not be stacked more than six or seven high. If stacked to the ceiling the circulating air is again cut off and the cooling of the fruit retarded. Whatever type of house

one may own, or contemplate owning, good, consistent management counts for more than anything else.



Specimen of fruit rot caused by anthracnose.

Early Fall Spraying for Apple Anthracnose Effective

By Arthur Frank, Plant Pathologist Western Washington Experiment Station, Puyallup, Washington

IN Western Washington it is frequently found that apples rot from the anthracnose quite early in the summer. Cankers of the disease can be found on the limbs of trees with mature spores as early as the middle of July. In a season of abundance of heavy dews

and frequent fogs it is to be expected that under those conditions considerable infection of the fruit will take place.

It was thought desirable to apply an early spray before the apples were picked to see if rotting of the fruit could be prevented. Some trees were secured in the orchard of Mr. C. C. Ireland near Ferndale, Washington, and with the assistance of Mr. H. B. Carroll, Jr., the county agent, the sprays were applied. The application was made the 24th of September, 1918. Burgundy mixture, Bordeaux mixture 3-4-50, and lime sulfur 1 to 40 were used. Boxes of apples from the sprayed trees and also from an unsprayed tree were picked and were stored until March 21, 1919, when the counts were made. The variety was the Salome. The results were as follows:

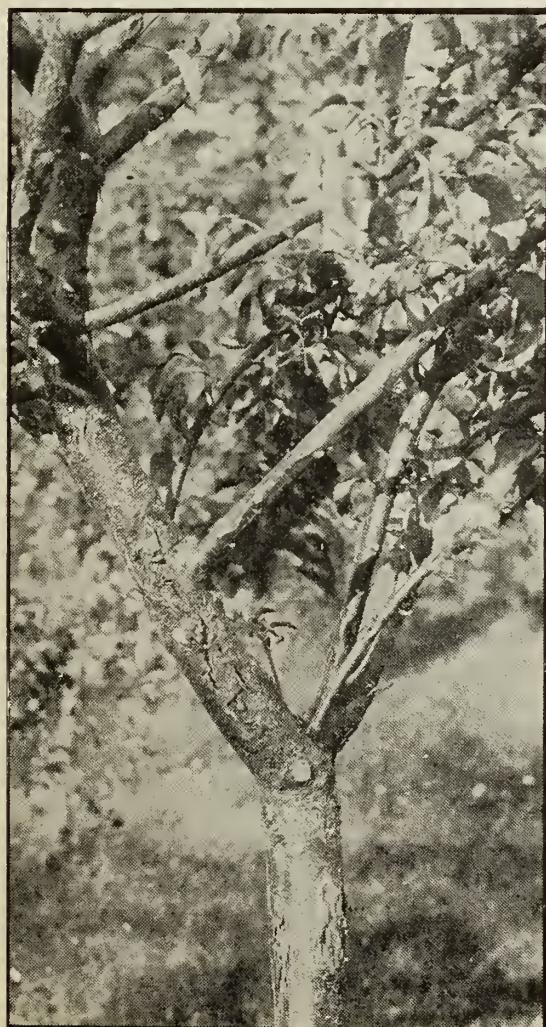
Treatment	No. of Apples	Sound	Dis-eased
Lime sulphur.....	171	62%	38%
Burgundy	193	80%	20%
Bordeaux mixture....	194	84.5%	15.5%
Check (no spray)....	186	54%	46%

The results with the Bordeaux and the Burgundy mixtures were even more marked than the records show, as the spots were much smaller than in the case of those sprayed with the lime sulfur and the unsprayed.

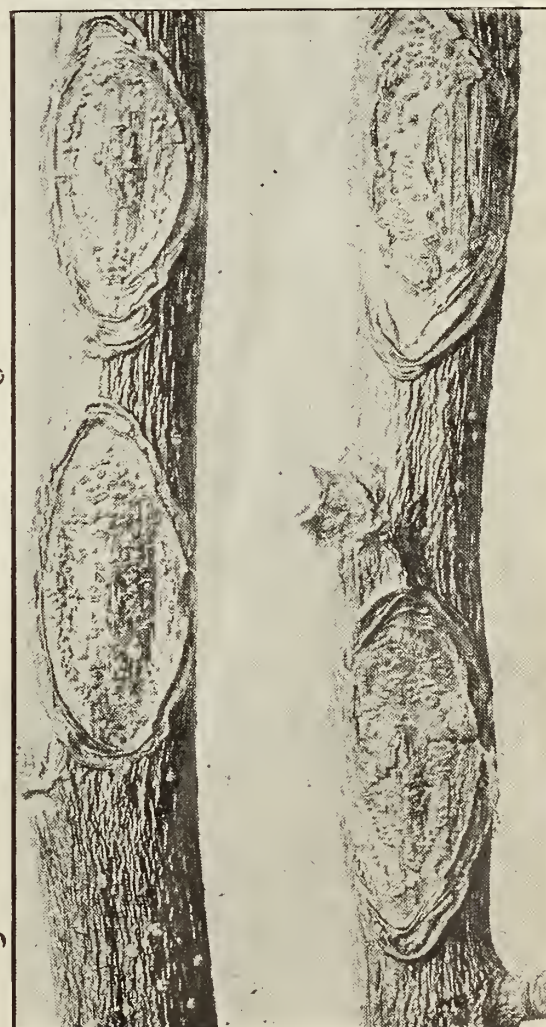
When the apples came from storage no trace of the Bordeaux mixture remained on the fruits. A pound of resin fish-oil soap per 50 gallons of spray was used with the two copper solutions when spraying the trees.

It is thought that if the trees were sprayed earlier that a larger percentage of clean fruit would be secured. The trees, after the apples were picked,

were sprayed again with Bordeaux mixture and the Burgundy sprayed tree with Burgundy. This spring there could be found but one new canker of the trouble in any of the trees. Last season these same trees were thick with girdled twigs and branches and there were many cankers over the entire tree.



Young tree girdled by anthracnose.



Specimens of anthracnose on apple tree limbs.

The above are the results of but one season's work, but these appear so promising that it is thought that some good may be accomplished by publish-

ing such results as were obtained that growers who are troubled with the disease may try this method in their orchards this season.

Fruit and Vegetable Storage for the Farm

By H. Colin Campbell

THERE is probably no producer of fruit on a large scale who has not at some time wished his place were equipped with proper means for storing either the entire crop or a certain surplus that would permit control of marketing to the extent of being able to take advantage of best or most desirable market conditions. Many millions of dollars of fruits, not to mention vegetables, are probably lost to the consumer, and consequently their money value lost to the producer, merely because fruit growers are, in but few instances, properly equipped to store the produce on the farm. Fruit which, because of the absence of proper storage facilities, must be marketed immediately at the height of harvest, seldom commands the most attractive price. The reason for this is evident. Everyone is disposing of his stock at the same time and the market becomes glutted. A few months after harvest there is usually shortages somewhere that result in attractive prices, and the fruit grower who, favored by having his own storage facilities on the farm, is able to take advantage of this situation, created largely through the neglect or misfortune of others, finds his storage cellar a profitable investment. Usually he finds that the first favorable opportunity thus created pays the bill.

Proper storages save vast amounts of fruit and vegetables that otherwise are

lost due to overstocked markets at harvest. Storage houses using mechanical refrigeration are undoubtedly ideal, but the cost of such is usually beyond the reach of the average fruit grower, so becomes out of the question. The storage house which the average grower can afford must be some type of air-cooled house and, properly built of suitable material, results have been obtained with storage cellars or houses of this type.

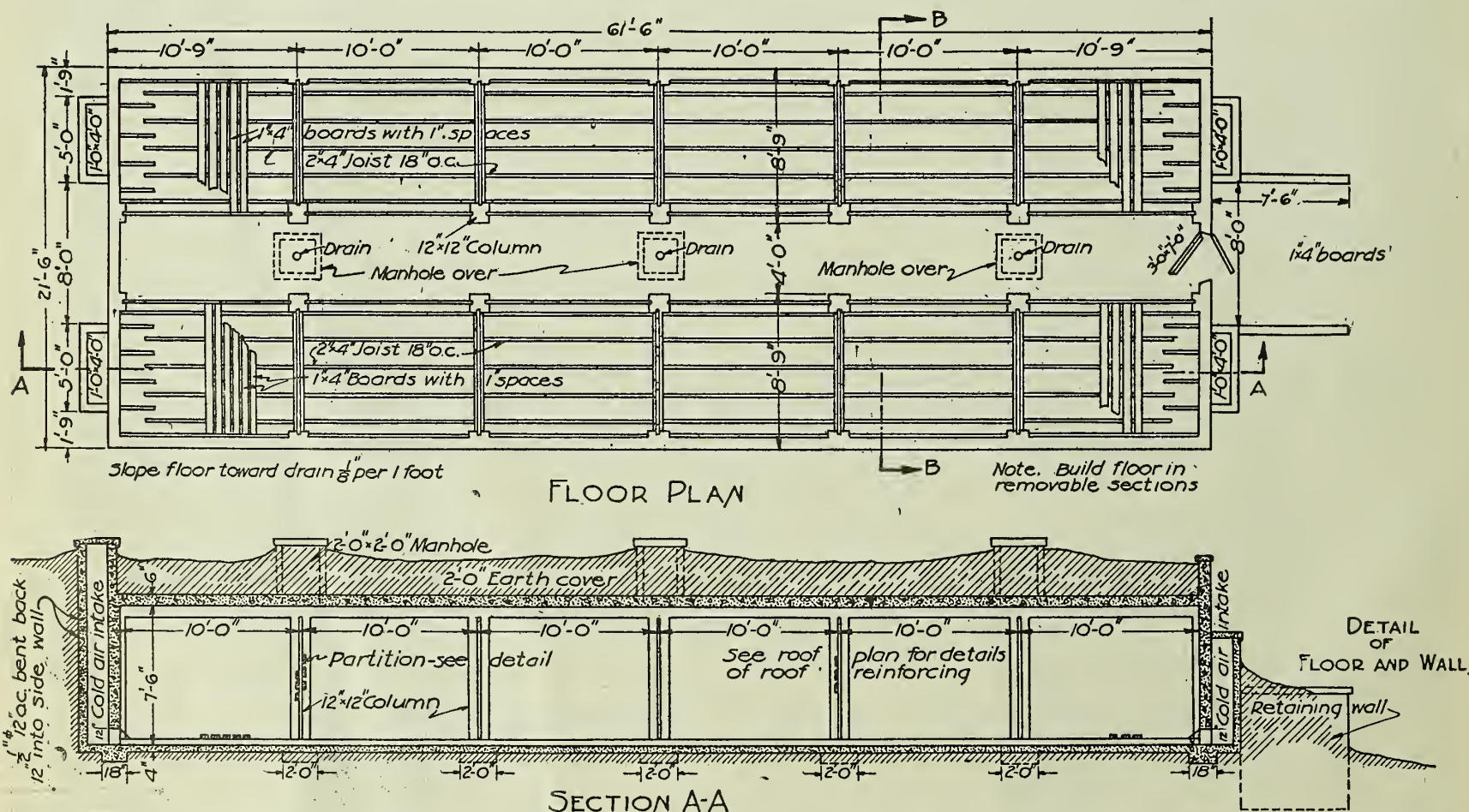
The successful storage of fruit, according to cold-storage experts, depends upon the following conditions: (1) Well sprayed, carefully handled fruit; (2) a low temperature; (3) an even temperature; (4) sufficient moisture to prevent shrinkage and keep the fruit crisp and plump. These essentials make it evident that the success of any system of storage becomes largely dependent upon being able to maintain a low and uniform temperature.

The average temperature of the earth is around 50 degrees Fahrenheit, which is much too warm for ideal storage conditions. Often in the latter part of September and early October, there are cold nights when the temperature drops to near the freezing point. Advantage should be taken of these cool spells to lower the temperature in the storage cellar. For that reason a structure of this kind must be provided with good ventilating facilities so there can be as

rapid and frequent change of air as necessary to keep temperature control where desired. Once cooled, it is essential that the storage cellar be kept cool. In order to maintain a low temperature, the walls of the structure must be insulated against possible extreme variations in outside temperature. Air-cooled storages can be used best in latitudes where the winters are fairly cold and constant, as in most northern sections of the United States and throughout Canada. Of course the mountain regions, particularly those of high latitudes, enjoy climate similar to that of the northern states.

Accompanying illustrations suggest details of a storage cellar 20 feet wide and 60 feet long, inside measurements. However, the length can be varied from 10 feet up, according to the capacity desired, by merely omitting as many 10-foot sections or adding as many such sections as necessary to secure the required capacity. Width cannot be changed without a re-design, since the design is based on the present fixed span of 20 feet. The floor, walls and roof of this cellar are of concrete, as this material is best adapted for the purpose.

Concrete makes a storage cellar or cave that is tight—one that keeps out moisture and rats. Concrete has another advantage that nearly everywhere most of the materials are available and construction can be done by ordinary labor under competent supervision. Special provisions for ventilation have been made in this structure. During cold evenings the covers on the cold-air intakes and roof manholes are removed. The cold air rushing down through the cold-air intakes passes under the floor



Plan for apple or potato storage cellar suitable for the fruit farm or for commercial purposes. The capacity of this cellar is approximately 5,000 bushels, or about 400 bushels to the bin.



Fruit and vegetable storage cellar (exterior view). This illustration gives view of a storage cellar at Purdue University, Lafayette, Indiana. Its dimensions are 50 feet long by 10 feet 6 inches wide. It is built of concrete and the method of construction is the Van Guilder hollow-wall type. It has three ventilators of six-inch tile and cost \$400 when completed.

of the bins because of a false floor. This floor consists of 2 by 4 joists covered by 1 by 4-inch boards, with 1 inch space between. Joists are so placed that air can pass from one end of the cellar to the other. Openings in the floor allow the air to pass up through the bin, thus cooling contents. Bin walls are also built so that cold air can pass upward around the bins. If the air in this cellar becomes bad because of ripening fruit or because of excess moisture, ventilation can be secured by opening one of the manhole covers slightly. Usually, however, the ventilation obtained incidental to initial cooling of the cellar is sufficient to carry away all vitiated air. Even in the best of storage cellars the air is apt to become too dry at intervals, thus causing fruit to shrink and shrivel.

This tendency should be carefully watched and, as soon as evident, the air in the cave should be moistened by sprinkling water on the floor. Cold, moist conditions are to be sought, but the first consideration should be a low, uniform temperature.

A good location for a storage cellar is on a hillside. Such a location makes it possible to have entrance at grade. A north front is to be desired because such exposure avoids direct rays of sun when the cellar must be opened and also draws in cold air at night.

Georgia Horticultural Meeting.

Horticulturists throughout the country are being invited by the Georgia State Horticultural Society to attend its annual meeting, which will be held this



Concrete fruit storage cellar (interior view). This storage cellar, which is located on the grounds of the Great Northern Nursery Company, at Baraboo, Wisconsin, has a capacity of 5,000 barrels of fruit.

year at Cornelia, Georgia, on the 20th and 21st of August. Cornelia is a well-known Southern summer resort, and those who attend the meeting are promised a pleasant and interesting occasion.

Veteran Fruitman Visits United States

After an absence of several years owing to the war, Michael Simons, the veteran English fruitman, made a visit to the United States during the past month. Mr. Simons is a member of the firms of Simons, Shuttleworth & French Co., New York, Simons, Jacobs & Co. of Glasgow, Scotland, and Garcia, Jacobs & Co., London, and although seventy-seven years old, still takes a very active part in the fruit trade.



Michael Simons, veteran fruitman of London, who recently visited United States and predicts prosperous season in export apple trade.

In New York, where he visited the trade, he received a very warm welcome after his long absence. It has been the custom of Mr. Simons when he visits America to come West and visit the Northwest fruit-producing districts, but this year, owing to other matters that took much of his time, he eliminated the Western trip.

Mr. Simons while in New York reported that the prospects for the coming apple season in Great Britain are very encouraging. In speaking of the outlook for 1919 season abroad he said: "We expect a prosperous apple season this year in England and Scotland. By the time the apples are ready for export England should have acquired a considerable number of new ships, and I have no doubt that a liberal provision will be made for apples. What the freight rates will be, however, are uncertain at the present time."

Fruit men are becoming alive to the fact that the pear is a profitable fruit for Western Oregon, and heavier planting is expected in the near future.

Dry Lime and Sulphur as Compared to Liquid

By A. L. Melander, Washington State College, Pullman, Washington

DRY spraying materials are more convenient to transport and keep than liquid or paste sprays, and hence as a matter of trade competition manufacturers have been desirous of placing such materials on the market. In the case of the sulphur-made sprays, two dry forms are being made, one where the sulphur is combined with soda and sold under the trade names of Soluble Sulphur Compound and Spraysulphur, the other a true lime-sulphur manufactured by the Sherwin-Williams Company.

In the early days of lime-sulphur each fruit grower had to make his own spray, cooking it in diluted form because with existing recipes a strong lime-sulphur would crystalize. Then by modifying the formula it became possible to prepare lime-sulphur in concentrated form, and factories took to making strong lime-sulphur solution for shipment. Whenever the attempt was made to increase the concentration further or to cook to dryness the lime-sulphur changed chemically, taking up oxygen and throwing out sulphur, and was so disintegrated as to be nearly valueless. The Sherwin-Williams Company, however, discovered a most ingenious and practical method of preparing lime-sulphur in dry form. A small amount of sugar added to a highly concentrated lime-sulphur solution was discovered to retard the chemical disintegration, so that the liquid could then be evaporated in vacuo and marketed in powder form.

When lime, sulphur and water are boiled together a series of progressive chemical reactions take place, whereby the original ingredients are changed, principally into calcium sulphids, calcium polysulphids, calcium thiosulphate, calcium sulphite and calcium sulphate. When the lime is in chemical excess (i. e., more than half as much lime as sulphur), the relative amount of thiosulphate is increased. When the sulphur is in chemical excess (i. e., more than twice as much sulphur as lime), the relative amount of polysulphid is increased. The best grades of lime-sulphur have the largest amount of polysulphid present, amounting to about 90 per cent. When lime-sulphur is applied as a spray it takes on oxygen; the polysulphid is converted into thiosulphate, the thiosulphate into sulphite and finally the sulphite into sulphate. It is this chemical change that is supposed to give to lime-sulphur its value as an insecticide, for the taking up of oxygen is a sort of chemical suffocation. Obviously, then, the polysulphid is the most valuable ingredient, for it can take on more oxygen than the other chemicals further along in the series.

When Sherwin-Williams dry lime-sulphur is dissolved in cold water a certain amount always remains as sediment. This sediment consists of sulphur and more or less chalk, possibly of value against mildew, but of no worth against scale or aphids. An old sample, or one that has been opened,

will have more insoluble material than a fresh lot. It is claimed that this insoluble material sometimes obstructs strainers and nozzles. If the dry lime-sulphur is boiled in water more or less of the sulphur goes again into chemical solution. A recent analysis by the State Chemist of Washington showed in round numbers the following interesting facts:

	In Cold Water	In Boiling Water
Insoluble	17%	0.4%
Polysulphid sulphur	42%	59.0%
Thiosulphate and other combined sulphur	8%	5.0%
Lime	25%	26.0%
Sugar	2%	2.0%

The Sherwin-Williams Company claims that the sugar stabilizer enhances the value of its product when sprayed on the trees. We know that a solution of dry lime-sulphur will not oxidize as rapidly as the standard liquid lime-sulphur, but this may be regarded as a theoretical disadvantage rather than an advantage, if the insecticidal value of lime-sulphur is due to its ability to absorb oxygen. Until this point is proved it would be unwise to be influenced by this argument.

The printed leaflets distributed by the Sherwin-Williams Company state that "a barrel of liquid lime-sulphur solution weighs approximately 600 pounds, and 80 to 100 pounds of Sherwin-Williams dry lime-sulphur will accomplish the same results." This statement is obviously fallacious, but is made in order that a 100-pound drum of the dry material can compete in selling price with the barrel of liquid. A barrel of standard lime-sulphur concentrate contains approximately 135 pounds of sulphur and 65 pounds of lime in solution in 320 pounds of water. All 200 pounds of the ingredients are soluble and there is the maximum amount of polysulphid sulphur immediately available. In the drum of dry lime-sulphur there are about 65 pounds of actual sulphur and 26 pounds of lime, but of the 100 total pounds about 20 pounds consist of sugar or material insoluble in cold water. Unless there is evidence to the contrary a pound of calcium polysulphid should be regarded as a pound, whether sold in dry form or dissolved in water.

On the basis of actual sulphur content it would take two drums of dry lime-sulphur to be equivalent to a barrel of concentrated liquid, unless the material is boiled into solution two and one-half drums would be a closer equivalent. On the basis of similar strengths of spray solution, therefore, the cost of dry lime-sulphur at present prices is too great to offset the possible advantages of the dry over the liquid.

During 1917 and 1918 the Washington Experiment Station carried on some comparative spraying tests on the San Jose scale, in which the dry lime-sulphur was used. These tests indicate that the Sherwin-Williams product has merit, comparing well with the equivalent strengths of the standard liquid form. The fact that the Sherwin-Williams Company can adduce testi-

monials showing beneficial effects from a weak spray can be paralleled with almost any insecticide. We have repeatedly noticed surprising results from extremely weak solutions, but no one feels ready seriously to recommend ultra-weak sprays for general practice. The fruit grower who depends upon using ten pounds of dry lime-sulphur to fifty gallons is taking a big risk. The weakest lime-sulphur that can be generally recommended for winter spraying tests three degrees, by the Baume hydrometer, and contains about ten pounds of sulphur and five pounds of lime in each fifty gallons. This is equivalent to a dilution of three and one-half gallons of factory-made concentrate in fifty gallons. To produce a similar strength nearly twenty pounds of dry lime-sulphur would be ordinarily required unless the material were boiled into solution, in which case a trifle over fifteen pounds would suffice.

Weighing the pros and cons in comparing liquid and dry lime-sulphur the advantages of the dry form consists in convenience in transportation and avoidance of worries about freezing and leakage. The disadvantages include expense, possibility of deterioration, difficulty of solution and waste of valuable sulphur unless the powder is boiled into solution.

Fruit Growers' Convention

The Fifty-first Fruit Growers' and Farmers' Convention, recently held at Riverside, California, was one of the largest representative gatherings of fruit and vegetable growers, horticultural experts and horticultural inspection officials ever held in the West.

The convention meetings were held in the cloister and gymnasium of the Mission Inn. Programs were carried out by the Fifty-first Fruit Growers' and Farmers' Convention, Interstate Plant Quarantine Conference, California County Horticultural Commission, Convention of California Association of Nurserymen, State Vegetable Growers' Conference and Pacific Coast Economic Entomologists. In addition to the delegates who were present from the Western states, Hawaii, New Zealand, Lower California and British Columbia were represented.

The discussions were of great importance to fruit growers and farmers in the Pacific Northwest. Among the subjects that were taken up were: Marketing methods of fruit and vegetable production; quarantine and methods of control of horticultural and agricultural pests, including boll worm of cotton, cotton boll weevil, alfalfa weevil, citrus canker and other horticultural pests.

One of the results of the conference was the organization of the Association of Western Quarantine Officers, which was formed to further unify and protect the Western states against crop pest invasion. Discussions of uniform grades, packs and packages for horticultural, agricultural and livestock products was one of the most important subjects considered.

Big Shortage Indicated in 1919 Apple Crop

THE Bureau of Crop Estimates, which recently issued its first 1919 apple-crop report, secured through its fruit-crop specialists based on the conditions June 1, states that indications are that the apple output in the United States will be considerably less than last year. The report says only the condition figures are given, as conditions are so changeable at this time that any quantity estimates is certain to be very temporary. The salient features of the report are the prospect of a record crop in the Western States, and a crop for Western New York which will probably not exceed much more than one-half of last year's crop. The indications from Virginia, West Virginia and the heavy production centers in the Middle Atlantic States promise only slightly better than one-half a full crop. Much of the Middle Western crop was severely damaged by frost and conditions throughout the Ohio Valley particularly are very low. Arkansas and Southwest Missouri indicate about three-fourths of a crop, while the same may be said of New Jersey and Delaware. All indications in New England point to a much better crop than last year, while Michigan will have less than two-thirds of a crop.

The condition of the crop for the United States June 1 was indicated at 61.4 per cent as compared with 68.6 per

cent as an average ten-year condition on June 1, and a condition of 69.8 per cent June 1 last year. The final condition figure last year was 55.9 per cent. It should be remembered that the condition figure on June 1 will usually average around 15 points higher than at the end of the season.

The Northwest boxed-apple crop promises to be the largest ever produced, according to conditions the first week in June. Production for Washington, Oregon and Idaho is estimated at about 27,500 cars of 756 boxes each as compared with about 20,000 cars in 1918 and 25,000 cars in 1917.

WASHINGTON.—Approximately 20,500 cars are forecasted for Washington this year as compared with above 17,000 cars last year. Winesaps, which were exceedingly heavy last year, are reported light in places, although all varieties seem well set, and particularly Jonathan, which were light last year. A heavy June drop is reported in progress in the Yakima Valley. Up until this time crop prospects were excellent, and it now seems that the entire Yakima Valley, including Yakima and Benton Counties, may ship approximately 9,000 cars, or about 1,500 cars more than last year. With the exception of limited sections affected by frost the Wenatchee North Central Washington district promises an excellent crop, and there are prospects at this time for about 9,000 cars of 756 boxes as compared with 8,300 cars last year. The Walla Walla district, which last year shipped only 130 cars, has prospects for nearly 1,000 cars in 1919, of which half will be Rome Beauties. Reports from Spokane emphasize the frost damage and June drop, and the crop now promises to be between 600 and 800 cars. Taking Washington state as a whole,

it seems this state may ship its largest apple crop.

OREGON.—The Hood River district will ship from 2,000,000 to 2,250,000 boxes of apples, according to present prospects, as compared with about 1,350,000 boxes last year. Hood River promises by far its largest crop. Other districts in Oregon are equally promising and promise bumper crops. The Rogue River is now estimated at 755 cars, the Mosier and Dufur section at 300 cars, and the Milton-Freewater section at 500 cars, as compared to 250 last year. The state as a whole has prospects for nearly twice as many apples as in 1918.

IDAHO.—Definite estimates are difficult for this state on account of June drop. Various reports give state at from 75 to 100 per cent of the record 3,500-car of 1917. The Lewiston district will have better than 400 cars.

COLORADO.—A heavy freeze reduced prospects in Delta and Montrose Counties on June 1. The Grande Valley escaped, however, and now has prospects for approximately 2,000 cars, or double the 1918 crop. Delta County is estimated at 600 cars, Montrose at 50 cars and Canyon City at 600 cars. The state as a whole may ship 40 per cent more apples than in 1918.

UTAH.—Prospects throughout the state are generally good, showing a 10 per cent increase over last year. The state as a whole will ship approximately 800 cars; Weber and Davis Counties 200 cars each and the Provo district 250 cars.

MONTANA.—Montana is now estimated at 450 cars from the Bitter Root Valley.

CALIFORNIA.—The Watsonville district, which shipped nearly 2,500,000 boxes in 1918, has prospects for a 10 per cent heavier crop than last year. Newtowns, the principal variety, are about the same as last year, while Belleflowers are considerably heavier. The Sebastopol section is now estimated at about 750 cars, of which approximately 500 cars will be Gravensteins. It is too early to forecast dried-apple production, although the Watsonville district is now forecasted at about 5,000 tons of dried apples and Sebastopol at from 3,500 to 4,000 tons, which is almost equal to the very heavy production of 1918.

CANADA.—Reports from Canada promise a



English walnut orchard near Dundee, Oregon. Seven-year-old tree in the foreground. Walnut growing is proving remarkably successful in this section of Oregon, which includes Salem and a large surrounding territory. It is now estimated that there are 8,000 acres set to English walnuts in Oregon.

bumper crop from Nova Scotia, which last year had a fair crop, or about 800,000 barrels. Quebec and Ontario are spotted and indicate rather light crops. The Okanogan Valley in British Columbia indicates a 50 per cent increase in the apple crop over last year.

American Tractors to Farm the World

More than 314,000 motor tractors for farm use will be manufactured in the United States this year, according to the estimate of the Agricultural Department.

Ninety thousand of these tractors, representing about one hundred million dollars, will be sent abroad to foreign countries and will be used to increase the crop production of nearly every country in the world.

Working with a tractor one man can do more work than six men, thirty horses, or a hundred oxen, under the old-fashioned methods formerly in vogue. This will make up, in a large way, in Europe, for the shortage of men caused by the war.

The power of all tractors is derived from internal combustion engines. The fuel used is generally kerosene, though some use gasoline. Practically all have magneto ignition, because of its intense spark, simplicity, and absolute reliability. It would be impossible, in foreign lands, to use any other form of ignition.

The sturdiness of the magneto enables it to withstand rough usage, and, being a self-contained generator of electrical energy which requires no attention or replenishing, it has made the use of American tractors possible everywhere.

Altogether, there will be about half a million American built farm tractors at work in 1920, where there were practically none five years ago. The United States leads the world in this line of manufacture.

Walnut Growers Issue Report

The first annual report of the Western Walnut Association, which was recently issued, contains much valuable information on nut growing and marketing and shows that the organization,

which covers the field both in Oregon and Washington, is in a healthy condition. The object of the Western Walnut Association is educational and to promote a greater development of the walnut and filbert industries of the Pacific Northwest. The association holds an annual winter meeting, at which time a program is given and officers are elected. An annual summer tour in which several days are spent in making observations and gathering information in the nut orchards of Washington and Oregon is also made. Membership in the organization is open to the public and the dues are one dollar per year. The officers of the association are: J. E. Cooper of McMinnville, Oregon, president; Prof. C. I. Lewis of Corvallis, Oregon, vice-president for Oregon; A. A. Quarnberg, Vancouver, Washington, vice-president for Washington; Knight Percy, Salem, Oregon, secretary-treasurer. The executive committee consists of Dr. J. H. Wilkins, McMinnville; Robt. C. Paulus, Salem; Clyde LaFollette, Amity. Nut growers who are not members of the association and desire to join are requested to communicate with the secretary of the organization.

Big Increase in Peach Crop

The Bureau of Crop Estimates has issued its second quantitative forecast of the strictly commercial peach production for the United States based upon the condition of the crop June 1. The condition of the peach crop, according to this report, has undergone considerable change since May 1, notably in the Eastern and Northern States, where the crop will not reach earlier expectations. The most salient feature of the report is the very large crop in the far West, which promises to exceed that of former years.

There is now indicated in the United States a total crop of 30,820,000 bushels as compared with 20,578,000 bushels last year, or 50 per cent increase over the comparatively light crop of 1918. The crop west of the Rockies promises 46,550 cars as compared with 33,905 cars last year. The Southern crop, including Missouri, Arkansas and Oklahoma peaches, promises 15,230 cars as compared with 11,715 cars last year. This increase is due to the large crop in Arkansas and surrounding territory. The crop from the Middle Atlantic States promises 6,725 cars as compared with 4,204 cars last year, while that for the Northern States promises 7,780 cars as compared with 1,685 cars last year.

Virginia Improving Apple Output.

While Virginia is a long way from the Pacific Northwest, it is interesting for Northwest apple growers to know that a good crop is expected in this Southern state, which more nearly competes with the Western boxed apple than any of the other Eastern states. Packing apples in boxes is now quite prevalent in several of the apple-growing sections in Virginia, although the larger part of the crop is still being shipped out in barrels. The Virginia crop this year is expected to exceed

that of 1918 by many thousands of barrels. This increase in the 1919 yield is said to be largely due to a course of education which has been put into effect by men who were formerly engaged in the apple business in the Northwest and who have interested the growers in Virginia in spraying apple and other fruit trees.

Fruit Brings in \$150,000,000.

The income from Northwest fruits is growing by leaps and bounds. Figures recently compiled for the State of Washington show that last year over \$100,000,000 was received by the above-named state for its fruit crop, and that the total figures for Oregon were over \$50,000,000. Of this amount the big increase in the returns in Oregon were due to the immense development taking place in the growing of berries, prunes and other small fruits, and the expansion of the dehydrating, drying, canning and preserving plants. In the Salem district alone the returns from its fruit industry were more than doubled last year. The bank clearances at Salem in 1919 increased from something like a little over \$3,000,000 to over \$6,000,000, the greater part of the increase being from returns on fruit.

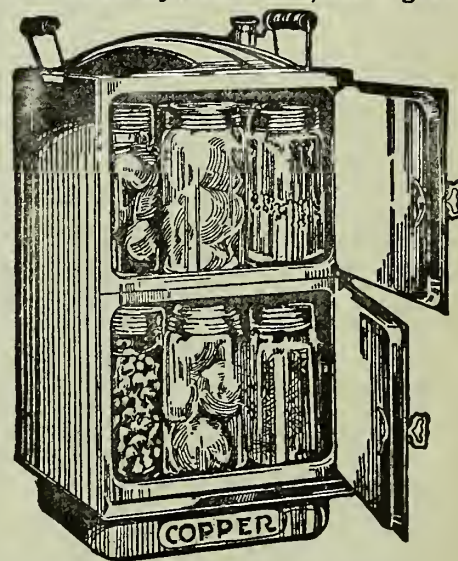
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Advises Increased Apple Tree Plantings

IN an article recently issued by the Bureau of Information of the United States Department of Agriculture it is advised that increased plantings of apple trees be made to take care of an increased demand which it says is coming and will continue. Commercial apple growers in the United States must meet any such increased demand without increased acreage, and little can be done toward immediately increasing the supply when an unusual demand appears.

Must Increase Plantings

Taking the United States as a whole, there has been very little planting of apple trees since 1910. Comparatively few young trees, therefore, are coming into bearing at this time. This is shown by an investigation of the commercial apple industry recently made by the United States Department of Agriculture. Indeed, the largest single commercial apple-producing section in the United States has reached its maximum production, and unless the planting rate increases a decline is to be expected.

The region is Western New York, which early in the sixties became and has since remained the center of commercial apple production in the United States. Western New York has produced regularly about one-fourth of the normal commercial apple crop of the country. But most of the present bearing trees were planted in the late sixties and early seventies and are now nearly fifty years old. Vigor and productivity continue longer in Western New York than anywhere else in the country, perhaps, yet they cannot be maintained indefinitely, and the center of production may be expected to shift. Similar de-

clines are taking place in what is known as the New England Baldwin belt, including portions of Maine, New Hampshire, Vermont and Massachusetts, but as this has never represented more than five per cent of the total commercial production it is of relatively less importance.

Other Production Centers.

In latter years two comparatively new commercial apple regions have come into large production—the Pacific Northwest and the Shenandoah-Cumberland region of Virginia, West Virginia, Maryland and Pennsylvania. The former is producing now almost as many commercial apples as New York, and the latter is producing about half as many. Roughly speaking, New York, the Pacific Northwest and the Shenandoah-Cumberland produce about five-eighths of all the commercial apples grown in the United States. The Shenandoah-Cumberland region is yet only approaching its maximum production. In the Northwest there was considerable planting of unsuitable lands, but Western production is being stabilized and will continue to be an increasingly important factor in the apple industry.

Other regions of considerable commercial apple production now are the Piedmont district of Virginia, the Hudson Valley, Southern Ohio, Western Michigan, Southern and Western Illinois, the Ozark Mountain region of Arkansas and Missouri, the Missouri River region of Iowa, Missouri, Kansas and Nebraska, the Arkansas Valley region, California and Colorado.

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The Furry Fruit and Produce Co., organized a short time ago, is building a \$5,000 warehouse at Yakima. The members of the new company are C. M. Furry, former manager of the Growers' Service Company, and W. D. McNair.

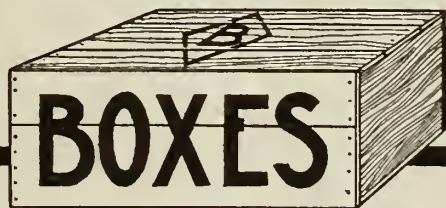
Garden Cutworms

Cutworms are among the most troublesome insects with which the gardener has to deal. They are familiar to most persons, and anyone engaged in gardening for any length of time has to contend with these pests, as they are what are termed "general feeders," attacking plants of almost every description.

Tomatoes, cabbages, sweet potatoes, lettuce and other truck plants, especially those which are started under glass and transplanted, are subject to more or less serious injury by cutworms. These pests appear sometimes in great numbers in the spring and early summer, and frequently do severe injury before they are noticed.

Cutworms are not at all difficult to control, and there are several methods by which this may be accomplished. The best, however, is the poisoned bait or poisoned bran mash. The following formula is for use in a small garden: White arsenic, quarter pound; syrup or molasses, one pint; water, four to six quarts; dry bran, one peck.

Thoroughly mix the arsenic in a peck of dry bran. Stir into four to six quarts of water a pint of cheap syrup or molasses. After this has been made up into a mash let it stand for several



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hours to allow the bran to take up the arsenic.

Other powdered arsenicals, such as arsenate of lead, may be substituted if double the amount is employed. Dry paris green may be used at the same rate as the arsenic. Arsenic is preferable, however, because cheaper.

Scatter the mash thinly along the

rows or about the bases of the plants to be protected as soon as the cutworms appear. It is better to make the application well toward evening, or at dusk, since the cutworms feed only at night or on dull, cloudy days, and the bait is more attractive when fresh. If the cutworms should reappear, repeat two or three times at short intervals.

Experimenting with Ladybugs

THREE hundred pounds of ladybugs stored at Walla Walla, Washington, during the winter and spring were liberated throughout the fruit-growing districts in that section up to June 5 to rid orchards there of aphids. It is estimated that these little beetles will completely cover 2,000 acres of orchards and grain fields in that section and destroy the aphids.

In liberating the ladybugs they were taken to the west side of the orchards owing to their well-known habit of traveling eastward, and an observation kept on them showed that they had deposited eggs three days after being turned loose. The eggs hatch out in six to twenty days after being laid, depending on the weather conditions. When

the larvæ appears they are said to be even more rapacious enemies of the aphids than the full-grown bugs.

District Horticultural Agent E. C. Wood, who has been conducting the experiments in using ladybugs to prey on aphids, has secured some interesting data concerning them. Investigations made in the mountains this spring satisfy him that the ladybugs can be secured there in the spring for a period of about ten days during the month of April. In the fall, he says, they can be gathered for a much longer period, as they begin to colonize in July and remain in colonies during the winter.

"There are two very important reasons for gathering these beetles rather than letting them come to the valley

by themselves," said Mr. Wood. "When the beetles are gathered we are able to place them where they are most needed, and again they can be set to work several weeks earlier than when left to themselves.

"This beetle is strictly carnivorous and does not feed on any vegetation so there is little danger of it becoming a pest, no matter how rapid the multiplication."

Plans already are being made by local orchardists for a ladybug hunt this fall and it is expected that many hundreds of pounds of the insects will be stored next fall.

Experiments in keeping the ladybugs in storage last winter demonstrated that those kept in ordinary storage showed a loss of about one-third, while those kept in cold storage showed practically no loss at all.

Tour of Nut Growers Arranged

A tentative schedule has been arranged for the annual summer tour of the Western Walnut Association through Oregon and Washington walnut and filbert orchards. The tour as now arranged will start at McMinnville August 5 at 1 p.m. The first afternoon will be spent in Sheridan orchards, where among other places that will be visited will be that of Professor C. I. Lewis. The morning of August 6 the party will leave McMinnville for Portland, going through Washington County, where the groves of Thomas Withycombe and Mr. Malpas at Gaston will be visited and the Forbis place at Dilley. A number of other stops will be made, including one at Orenco to visit the nursery of the Oregon Nursery Company.

The party expects to arrive during the afternoon at Vancouver, Washington, where an inspection will be made of the Quarnberg, Norelius and Shaw orchards. Returning to Portland the party will leave that city at 8 a.m. on August 7 for Oregon City, where plantings will be visited, and continuing south stops will be made at places near Aurora, Canby and Woodburn. At Canby the Dr. Walgamot nursery will be a point of interest. From Woodburn the trip will be routed to Wilsonville, where stops will be made at the orchards of John DeNeui, H. A. Krause and Dr. Jobse. From this point the route is undetermined and will be decided upon when the party reaches Wilsonville. The public is invited to join the walnut men in the tour. Those who decide to do so must provide for their transportation. If they have no car they are advised to arrange with a member of the party who has an extra seat in his car.

The summer tour of the walnut growers last year proved to be highly educational to those who made it, the impromptu discussion that took place in the orchards bringing out many interesting points about nut growing.

The Australian deciduous fruit producers are fast adopting American methods. Their crops do not conflict very extensively with ours, however, and better methods in Australia mean better prices for both.

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BETTER FRUIT

An Illustrated Magazine Devoted to the Interests
of Modern Fruit Growing and Marketing.
Published Monthly
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PORTLAND, OREGON

Organizing the Fruit Industry

The movement for the co-operative organization of the producer is encircling the globe. We are told that co-operation among the tillers of the soil in European countries is not new, but is an old story. And now the movement is being taken up in the deciduous fruit-production sections of South Africa, Australia and Tasmania. The fruit growers of Australia are the latest advocates of a co-operative association which will embrace all phases of the industry in this new group in the fruit-growing world. The activities of this association will embrace everything from fresh fruit to jellies and jams, which are to be put up in a big central canning and preserving factory to be erected at Melbourne. Other deciduous fruit-growing countries in that part of the world are following suit.

The cry for co-operation for the producer from Australia to Oregon and then across the American continent to Europe is a far one, but it is being heard and the fruit growers of the world are apparently determined to standardize and stabilize their products. It seems strange that the comparatively new deciduous fruit-producing countries of Australia, Tasmania and South Africa realized the benefits of co-operation on a big scale before an old established fruit-producing section like Oregon, but such is the case, as the movement toward organization was commenced in the above mentioned far-away countries a long time ago.

However, the fruit growers of Oregon have been awakened. It took a severe jolt to get them out of the rut, but the jar has fully opened their eyes. The rich possibilities for the big, rapidly-growing fruit industry of their state, fostered and completely controlled by a state-wide co-operative organization entirely in the hands of the growers, has at last sunk in. Perhaps the delayed action of Oregon's fruit producers was due to the lack of proper education and the psychological moment to merge, however, as the amalgamation at the meeting held for the latter purpose was apparently complete.

As planned the proposed Oregon Growers' Co-operative Association bids fair to be a success. Organized along even more progressive lines than the most successful co-operative associations of California, its provisions apparently leave nothing to be desired by the grower in the way of a marketing organization and also an organization that should place the former uncertain conditions of the fruit industry on a firm basis. In a word, to make fruit products as nearly as possible a staple rather than a perishable product, by providing a market for them, either

fresh, dried or canned, at the highest market price while not attempting to gouge the consumer. Under the provisions of the organization plan, profits that have heretofore gone to outside concerns should be conserved to the grower, overhead expenses should be minimized and the industry greatly stimulated and developed, provided that the affairs of the proposed organization are administered intelligently and honestly.

It has been suggested that the proposed organization had its inception through channels in California that seek to control the fruit industry in Oregon in order that it will not conflict with the industry in that state. It would seem, however, that Mr. Robert C. Paulus, who has made such a signal success in managing the affairs of the Salem Fruit Union, and is virtually at the head of the new movement as well as the strong personnel of the organization committee should be sufficient assurance that no such underground methods are contemplated. Provision should be made for co-operation with the California associations when deemed expedient, but anything verging on possible control of the Oregon organization should be carefully guarded against.

The Stopping-in-Transit Privilege

The recommendation of the Western Traffic Railroads Committee that the privilege of unloading Northwest fruits in transit be revoked would be a severe blow to the Western fruit grower. If this order is put into effect many sales of fruit which went to points in the Middle West will be stopped owing to the fact that they are unable to purchase in carload lots. It is also expected that the order will do away with the privilege of stopping fruit in transit for the purpose of placing it in storage. The reason assigned by the Traffic Committee for this action is that the privilege is discriminatory in that it only affects the Northwest territory.

Fruit-shipping concerns in the Northwest have taken up the matter and are urging that all interested present a strong protest to the railroads against approving the recommendation of the Traffic Committee.

There is just ground for opposing this recommendation; for while the order may be discriminatory in that it only affects the Northwest it should be remembered that no other deciduous fruit section has such a long haul to its markets and none pays so high a freight rate. The disadvantage, through this high freight rate, that Northwest deciduous fruits are under in competing with the fruit-growing sections of the East are already great enough, without a further handicap.

The railroads which are the greatest beneficiaries of the Pacific Northwest fruit industry should use every means to develop instead of retard it, and this is a case where they can help very materially.

Editorial Comment

Fruit growers will be interested in supporting the proposed establishing of motor-car express routes, a matter which is now before Congress. Nobody will be more benefitted by this rapid method of transportation in districts not reached by the railroads than the fruit raiser.

Congress is being asked by 3,000,000 farmers in the United States for the continuance of the United States Employment Service. The fruit grower should join hands with the farmer in this movement, as his need of labor is even more imperative.

The war between the ladybugs and aphids in Walla Walla County, Washington, will be watched with interest. From present indications the ladybug drive seems to be making great progress. Perhaps it will be wise, however, to await the final report from the front.

The fine results obtained in Washington orchards through early fall spraying for apple anthracnose should encourage orchardists who have trees affected with this disease to apply the remedy which is given in this number of BETTER FRUIT. It means saving your trees and higher quality fruit.

Fruit storage houses and a thorough knowledge of them is a timely topic. The proper kind of a storage house may save your crop. It also makes it possible for you to market your fruit at the most opportune time. The time to build a storage house is well in advance of the harvest.

California leads the world in the apricot industry. In fact in the amount of tonnage produced from the area planted the Golden State exceeds any other spot on the globe. One of the big factors in this achievement is intelligent co-operation.

It is predicted that the time is fast approaching when American tractors will farm the world. They are farming a big slice of it now. Many orchardists are discovering that these machines are 100 per cent efficient. The iron horse has come to stay.

If grasshoppers become as much of a pest in the Northwest as they have in California the orchardist will be compelled to fight them. The United States Agricultural Department advises the use of poisoned bait. The formula is given in this number.

Experiments to improve huckleberries sounds good. There is no reason why the lowly huckleberry should not climb up into the aristocratic society of the cultivated bush berries. The huckleberry is the ne plus ultra of pie berries.

Work for our returned soldiers is a live issue. It would seem, however, that in view of the necessity of employing women in orchard work that the soldier who wants work could help himself a little.

Experimenting to Improve Huckleberries

FOR several years past Mr. F. V. Coville, of the United States Department of Agriculture, and Miss Elizabeth C. White, of New Lisbon, New Jersey, have been cultivating blueberries, also generally known as huckleberries, and have been working to produce new and better varieties. To get new varieties they find the very best wild bushes and then cross-breed these wild plants. The seeds resulting from the cross-breeding grow into all sorts of new varieties, just as seedling apples are seldom like the tree they came from. Many of these new varieties of blueberries are poorer than their parents, but about one in a thousand turns out to be much better than either parent and makes a promising new variety.

About ten years ago the Department of Agriculture published Mr. Coville's first work on blueberry culture. His most surprising discovery was that blueberries cannot live in a well-balanced fertile soil. They require a sour or acid soil and are actually killed by the application of fertilizer, which would be the best possible food for the ordinary plants. Some years ago a wild blueberry plant was found in Massachusetts with berries more than three-quarters of an inch in diameter, but it was killed by people who did not understand its proper care by being fertilized.

Since 1911 Miss White has been associated with Mr. Coville in these investigations, he in the government greenhouses at Washington working out the scientific problems and originating new varieties by cross-breeding, and she at New Lisbon, New Jersey, raising these new varieties and the best wild plants that could be found. Mr. Coville and Miss White are now trying to find a number of wild plants to use for this work. They already have a few plants that have berries three-quarters of an inch through, and hope to produce hybrid berries an inch in diameter. They want more unusually fine wild plants, and will pay fifty dollars for especially fine plants with very large berries.

But it is not only the size of the berry that counts, and they are willing to pay smaller prices for plants that have many berries of slightly smaller size if these berries are of unusually fine flavor. Some bushes bear much more heavily than others. On some bushes the berries stick so tight that when they are picked a piece of the stem pulls off with the berries, or the

berry is torn and the juice leaks out. On other plants the berries come off the stems just right. Berries from some bushes spoil soon after they are picked, while others will keep for a week. Some berries are black and others of a beautiful light blue color. There are doubtless thousands of bushes in the country with berries three-quarters of an inch or more in diameter, and many other bushes with berries just a little smaller but of unusually fine quality, but it is only by having people on the

watch for them that these fine bushes can be discovered.

The fine varieties developed by cross-breeding will be distributed by the Department of Agriculture to persons who have learned enough about cultivating wild blueberries to show they can handle the new varieties with success.

Persons who are interested in finding such plants should write at once to Miss Elizabeth C. White of New Lisbon, New Jersey. Miss White will send full directions, with measuring gauges, and bottles of formaldehyde for mailing large berries that are discovered.

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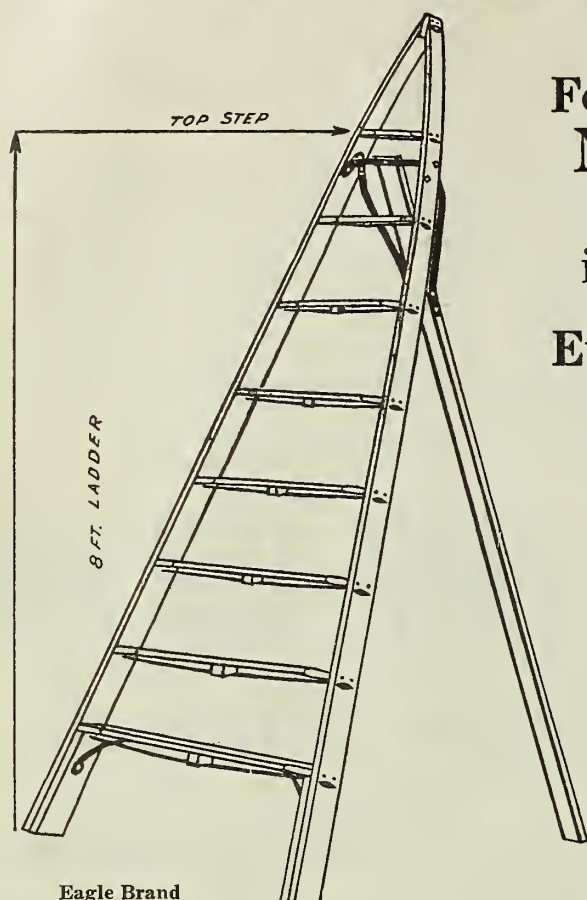
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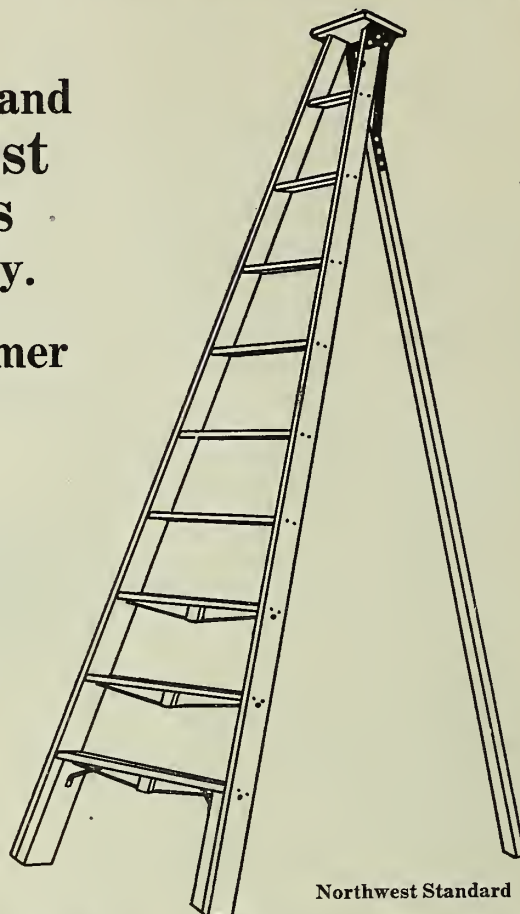
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How to Grow and Dry Apricots Successfully

A California Growers' Experience

APRICOTS are the first of the larger fruits that we handle. In previous years the buyers would want large fruit some years and in other years the demand was for both the larger and the smaller fruit. For the past two years, however, the demand has been so great for apricots that size mattered little if the fruit was of good quality. The normal demand, however, is for good sized fruit, and one of the problems that the growers have had to solve is to obtain it in a dry year.

Methods of Dry Culture.

There are two methods of obtaining large sized fruit in a dry year—deep plowing in the spring and good cultivation up to the time of thinning. If the trees are young, but of the bearing age,

they will hold the fruit longer and greener on the trees than trees ten to fourteen years old, the young tree ripening the fruit more slowly than the old tree.

If the spring rains do not come before the latter part of March it is time to commence deep plowing and thorough cultivation. At the proper time, usually between May 1 and May 10, the fruit should be thinned. On young trees the fruit should not be allowed to touch each other on the branch. The bunches and clusters in a dry year should be thinned out to half a crop to secure good sized fruit. Old trees should be even more severely thinned, as the fruit on them is inclined to grow in clusters of from four to twenty on a fruit stem. Thin them to one finger apart and to half a crop.

This advice is for the grower who has no system of irrigation. By following the above advice you will be reasonably assured of good sized fruit in a dry year and the sizes come up to the buyer's idea of good, clean fruit.

Irrigation.

If you wish to succeed every year, rain or no rain, you must have irrigation. If you have no water, place in your apricot orchard a good sized pumping plant, suitable to the number of acres of fruit. It has been my experience that it will pay every owner of a five-acre tract in orchard to have water to put on it when needed. Irrigation is the apricot grower's best investment to insure a regular crop.

Other Methods to Be Pursued.

Like other branches of fruit growing, apricot culture is a real science. One should know at sight the condition of the trees, their growth and what they need. Apricots need good heavy pruning every year. If it is a year of no crop there will be plenty of inside growth and lots of wood to cut out.

The year of a good crop there will be but little inside growth of wood. You should watch carefully the condition of your trees for the next year's buds by thinning out all the inside growth and shortening all straggling limbs. The trees should be sprayed in the latter part of November with bluestone and lime or bordeaux mixture. In February or just before the trees come into bloom they should be sprayed with lime, sulphur and salt or given another spraying with bordeaux mixture. The latter is

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more effective against blight and cleans up the bark also.

Like other fruit trees, there are four growths in the apricot tree each year: the bud growth and bloom, the leaf growth, the wood and fruit growth, and the last growth in September to strengthen the buds for the coming year. Then the trees become dormant.

A good time to prepare the land in an apricot orchard for winter is after the fruit is thinned. Run your furrows as the land drops away, plowing three feet from the trees on each side of the row, throwing the furrow toward the tree. When the land has been plowed in furrows one way, then cross plow, if the land is nearly level, every fifty feet; if steeper, every twenty-five feet. These cross checks hold the water from run-

ning faster than you want it. In this way the whole space, including furrows, will be covered with water.

The slower you put on the water, the deeper it sinks. On the first irrigation the land is so thirsty for that long drink you wonder where it is all going, but in a little time it comes along with a strong force until the whole row has been watered.

If your main ditch is large you can irrigate three or four rows at a time. Let the water seep into the ground through every row in the orchard. When you have finished the last row, go right back to the first row and commence all over again. The second watering will be done much faster than the first, and will be very effective.

Some parts of all orchards will dry

out sooner than other parts. Start the cultivation on the part that is ready. You can lose the moisture in a day, if you don't watch it. In three or four days start the cultivation. Do good work; do not skimp any part of the ground that was watered. After the cultivator follow with the disk harrow. Then follow with the clod smasher and smooth the land to prevent evaporation. In that way one will be able to raise good fruit in a dry year, and in no other way.

The Pumping Plant.

My apricots are Royals and Blenheim. The soil is a sandy sediment, twenty-eight feet deep, water gravel twenty-two feet, twelve feet of hard sand pan, where we reached second water. The total depth of wells is sixty-five feet. We have two wells in one pit.

We have a fine 18-horsepower crude oil gas engine. It is started with gasoline and distillate, and afterward run on crude oil. We have a No. 5 centrifugal pump, throwing a powerful stream. It is belted from the engine flywheel horizontally, and has connecting upright belt from the pump, with tightening jacks and levers.

The engine works easily. The pump throws 50,000 gallons an hour, or 500,000 gallons on a ten-hour run. The water is two feet below the pump, and after stopping the engine after a day's run the water is at the same level instantly.

The trees are planted in squares, 25x25 feet apart, and are thirteen years old. I consider a good crop six green tons to the acre, or one ton dried.

I never irrigate less than twice, and three times if needed. My personal judgment and how the trees respond to the water is my guide, but I always err on the side of "more water" for deep sediment soil such as I have. The bottom and top moisture should always meet beneath in any year to insure a full crop.

In ordinary years when the rains are plentiful during or at the time of blooming, only the healthy blooms will stick, which does not insure so large a crop, but larger fruit and not so many on the trees.

The Drying Yard.

During the drying season there are sometimes circular gusts of wind which come up in the afternoon, mostly from the south, and often overturn the trays and despoil the fruit. A cloud of dust rises also, making it very hard for the drying fruit. When this takes place never attempt to place the soft scattered fruit on the trays; if you do you will make a mess of it. Let it dry where it is, as you cannot save it all.

To obviate the trouble from dust we determined to plant alfalfa in the drying yard. After the fruit drying was over we flooded the drying yard space. It was then disked both ways and leveled and harrowed. The land was moist at the time and the seed came up. In April we cut the first crop. Just before we need the space for a drying yard we make another cutting, about June 20, cutting it down close and raking it

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clean. Then we are ready to use the yard for trays and fruit. When the drying season is over the yard is cleared and the space then is as clean as a clay floor from being used so much. It is then flooded with water and in three weeks the top of the ground is green all

over and before the rains come we have another cutting crop; three crops a year, a ton at each cutting. So we make something from the space that was before occupied by trees and have also solved the dust problem, which means clean fruit and better prices.

Oregon Growers Form State Wide Association

AS the result of a recent meeting in Portland of seventy-five representative Oregon fruit and nut growers to consider the plan of organizing a state-wide co-operative association, articles of incorporation have been filed and a campaign of education is now being carried on to fully inform the fruit growers of the various sections in regard to the details of the proposed organization. The incorporators of the new association are Isaac D. Hunt, D. W. Johnson, E. L. Klemmer, J. O. Holt, E. W. Matthews, C. I. Lewis, George L. Zimmerman, Seymour Jones and W. E. St. John.

The articles of incorporation cover the formation of two organizations, the Oregon Growers' Co-operative Association and the Oregon Growers' Packing Corporation. Control of both organizations will be vested in the former. The articles of the Oregon Growers' Co-operative Association provide for a non-profit and co-operative organization to promote the production of all varieties of fruits and nuts and to handle and pack these products in the interest of the growers. A contract is provided for between the two organizations whereby the association will deliver its products to the packing corporation, which will handle them on a non-profit basis. The control of selling the packed products is left in the hands of the association. To become a member of the association the applicant must be an actual grower of fruit in Oregon.

The capital stock of the packing corporation is fixed at \$1,000,000. Of this amount \$500,000 worth of common and \$500,000 of preferred stock will be issued, and the plan provides that members shall take stock in the organization on a basis of \$10 for each acre of fruit in bearing. The marketing agreement provides that the grower shall sell his products to the association and that the association shall pay the grower the resale price, less the actual cost of handling and the other necessary charges, which must not exceed two per cent of the gross selling price. The two per cent to be retained by the association will be used to pay advertising costs, dividends, and to create a reserve fund to retire the preferred stock.

While the association will extend its operations to all the fruit-growing sections of the state, its most immediate action will be the absorbing and combining of the interests of the Salem Fruit Union, the Umpqua Valley Fruit Union, the Roseburg cannery, the Douglas County Prune Growers' Association, the Scotts Mills Prune Growers' Association, the Dundee Prune Growers' Association, the Eugene Fruit Cannery's

Association, and the Willamette Valley Fruit Exchange at Corvallis. The large capitalization proposed is for the purpose of providing funds for the purchase of the physical properties of these organizations, such as canneries, packing establishments and equipment, and to construct and maintain additional plants where necessary. Funds to finance the proposition, it is reported, will be forthcoming when the association is ready to commence operations. The new organization will not attempt to handle any of the Oregon fruit crop this year, but expects to have everything complete for taking over this allied fruit industry in 1920.

To give the various districts local representation in the central body it is proposed to appoint a board of directors from each district. It is expected that the new organization will be handling \$5,000,000 worth of fruit products in the near future.

The new organizations had their inception through the efforts of Robert C. Paulus, manager of the Salem Fruit Union. At the suggestion of a number of prominent fruit growers in the Willamette Valley, Mr. Paulus went to California, where he studied the operations of several of the big co-operative associations. Being satisfied of their suc-

cess, he secured the consent of Aaron Sapiro of San Francisco, attorney for the largest co-operative associations in California, to come to Portland and outline a plan of organization for Oregon growers.

The plan received the unanimous approval of the meeting of growers, who appointed an organization committee of the following to take it up: Robert Paulus of Salem, W. W. Silver of Dundee, George Zimmerman of North Yamhill, E. W. Matthews of Amity, K. W. Johnson of Corvallis, E. E. Klemmer of Alvadore, J. O. Holt of Eugene, A. N. Elliot of Dallas and Earl Percy of Roseburg.

The following were also chosen to act in an advisory capacity to the organization committee: J. A. Taylor of Scotts Mills, Seymour Jones of Salem, Stanley Smith of Albany, C. I. Lewis of Corvallis, E. M. Barlow of Eugene, W. C. Jamison of Hillsboro, L. F. Russell of Washougal, R. H. C. Wood of Roseburg, W. C. Harding of Roseburg, W. E. St. John of Sutherlin, John Busenbark of Roseburg, Frank Gibson of Salem, Henry Both of Dallas, E. W. Coulson of Scotts Mills, G. A. Dearborn of Dundee, Ferd Groner of Hillsboro, Kenneth Miller of Sheridan, J. E. Cox of Dallas, H. S. Butts of Dallas, C. C. Hall of Gresham, J. A. Riggs of The Dalles, C. E. Spence of Oregon City, J. E. Ferguson, Stanley Armstrong of Milston, J. J. McDonald of Salem and Professor McPherson of the Oregon Agricultural College.

These two committees worked out the plans of the organizations with the assistance of Mr. Sapiro, which were adopted, resulting in their incorporation as already stated.

Growing Cuthbert Red Raspberries in Oregon

By Oren Stratton, Brownsville, Oregon

IN discussing the subject of growing the Cuthbert red raspberry let it be understood that this article is not written with the intention of encouraging or discouraging the growing of this fruit, but rather of giving some of the experiences we have had in the past few years in connection with berry growing, that the reader may draw his own conclusions.

We first became interested in this business in the year 1907, when we plowed up some river bottom land which had never been cropped, and planted the Cuthbert raspberry in rows seven feet apart and the plants thirty inches apart in the rows. This proved to be a very satisfactory venture, as the plants grew very rapidly and produced some fruit the first year, and the second year the crop yielded about one and one-half tons per acre.

At picking time the young canes had grown to a height of six to eight feet, with a heavy foliage, thus making it very difficult to pick the ripe fruit, and neighbors who saw this splendid prospect were encouraged to set out small tracts to cane fruits. We had planted some loganberries and blackberries also

at this time, which gave equal satisfaction as to yield.

A few years later, when the price for fruit at the canning plants was very low, in fact too low to produce fruit at a living wage, many of the smaller growers plowed up their berries and have since grown other crops on their land. In 1914 we decided to enlarge our berry field, having sixty acres adjoining the tract which we had first planted, all river bottom land and well drained. The sixty-acre field, however, had been farmed to grain for the past fifty years, growing splendid crops, the wheat and oats growing as tall as the horses' backs when harvesting the crops. We found the growth of the canes on this sixty-acre field much smaller than on the first tract planted, which would only be a natural result from the continuous cropping of grain. We have applied land plaster, ashes, etc., to the ground, but thus far have found nothing as satisfactory for a fertilizer as stable manure, though we have only a limited supply of this for use on this berry field.

The second year after planting this tract we had only a light crop of fruit, and in 1917 and 1918 the summer seasons were very dry and as a conse-

quence we cannot give a very glowing report of the yield, as we lost quite a large percentage of the crop in the field, caused by the unusual heat ripening up the fruit much faster than we could pick with the help at hand, though under ordinary conditions we had enough to gather the crop as fast as it would ripen. The yield last season was only a little better than a ton per acre that was saved and delivered to the cannery.

We telephoned the employment agency and bureau at Portland for more pickers, but could not get any relief to help us out of the emergency caused by the unusual ripening conditions.

We now have a small farm tractor of the track-laying type with which we can cultivate between the rows and thus conserve the moisture during the heat of the season, should we have another year as dry as was the last.

I might mention another thing we did last July which I now think was unwise. As we finished picking the raspberries we had a little time to spare for the pickers before the Evergreens were ready to pick, so we had some of the pickers thin apples and others cut out the old fruiting canes from the Cuthberts, thus giving the new canes a better chance to grow during the balance of

the season. We found a surprise in store, for when the rains came on the new canes developed fruit spurs, blossomed and in November we had a splendid crop of berries growing on the wood of last year's growth. We picked as many of these berries as we could, sold some on the local market and shipped many crates to Portland, where they sold at retail for 25 cents per box.

Now the question is, will this impair the growth and yield of the plants to the extent of diminishing the crop for this year? At any rate, we do not plan to repeat the summer pruning this season.

Through the co-operation of the Oregon Agricultural College and under the instruction of Professor C. I. Lewis we applied, as an experiment, 500 pounds of sulphate of ammonia on one plot of ground and 500 pounds of nitrate of soda to another plot, as near alike as we could get, and will note the results in the berries, growth of canes, flavor and color of the ripe fruit, etc.

I cannot give an exact account of the expense per acre of growing the Cuthberts, as we do not keep a check on this field alone, but cultivate and care for the entire tract together, as we grow Cuthberts, Black Caps, Lawtons and Evergreens in the same field. On ordi-

nary soil I do not think raspberry growing is as profitable as the loganberry or Evergreen blackberry, but this, like other propositions, all depends on the price paid for the different kinds of fruits.

To sum up our past experiences I might say, with the prices which prevailed up to 1919, we came out just about even with our expenses, but with the prices that are being paid for all berry fruits at the present time I think where one owns suitable land it could not well yield better returns than in growing berries.

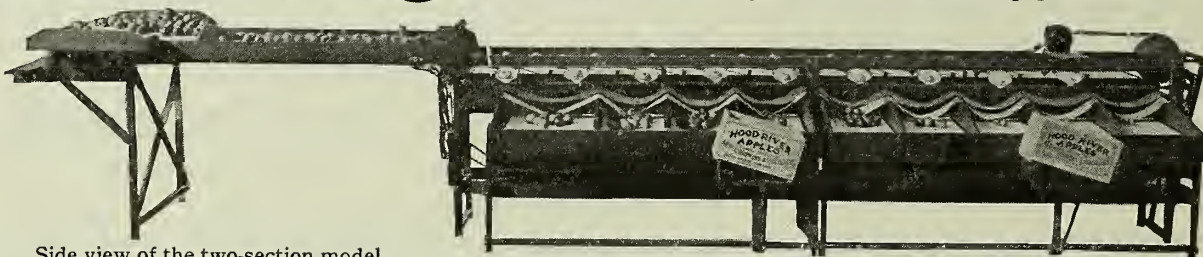
How long these prices will prevail I would not attempt to guess. History tells us that during the boom of 1910-12 about 50,000 acres of fruit was set out in the Medford district. Since that date about 20,000 acres have been dug up and the ground planted to grain and hay crops. It is best that we do not lose our balance of reason when these boom prices are offered. Let one try a small field at first.

I do not favor long-time contracts for fruit deliveries. I have had ten years' experience in the canning business, so I can view it from the standpoint of grower and canner. From my experience I would say that one year at a time is as long as I would advise.

Let the CUTLER

Cut Your Grading Cost 25% to 50%

**The Cutler
Mechanical Sorting
Table will do it.**



Side view of the two-section model

Read what the users of
Cutler Graders
have to say:

Chino, Cal., December 3, 1918.
Cutler Manufacturing Company,
Portland, Oregon.

Gentlemen: Your card for suggestions as to the use and care of the Grader was received with thanks. As to the grader which we purchased from you and used this season, we wish to express our perfect satisfaction as to the work it does, and would recommend it to anyone or firm wishing information as to the best grader they could buy.

Respectfully yours,

CHINO VALLEY APPLE GROWERS' ASSOCIATION
(Signed) B. M. Lederer, Secretary.

High Rolls, N. M., January 18, 1919.
Cutler Manufacturing Company,
Portland, Oregon.

Gentlemen: In answer to your letter of January 6th will say as to the Grader, it is just as you recommended. Well worth the price.

Very truly yours,

(Signed) S. KOTOSKY.

Wenatchee, Wash., January 22, 1919.
Cutler Manufacturing Company,
Portland, Oregon.

Dear Sirs: In reply to your of the 3rd instant, will say that I like my two-grade Cutler machine very much. One can take care of a crop much easier, as it saves so very much of the handling of the fruit where there is no grader. I used two packers and two sorters and one of the sorters packed quite a number of boxes each day. We packed out in all 5,200 boxes, averaging 235 a day. One man did the nailing up and stamping, waited on the sorters, besides waiting on one lady

packer, and made himself useful besides. I don't believe I would get along without a Cutler even at twice the price.

Sincerely yours,

(Signed) F. E. GAHRINGER.

Mr. Gahringer purchased a Two-Section Model in 1918. This is a case where our smallest model was run to only part of its capacity.

Wenatchee, Wash., January 29, 1919.
Cutler Manufacturing Company,
Portland, Oregon.

Gentlemen: We are very glad to report to you that we had elegant success with the 1918 grader that we purchased from you last season. We operated the machine thirteen hours per day four days each week, twelve hours two days and ten hours the seventh day. The machine ran continuously without a mechanical break and throughout the season we did not lose more than two or three hours on account of an occasional break with the belts. We put over the grader 67,000 boxes, with an average run of 1,400 boxes a day. Our best run in thirteen hours was 1,742 boxes. We are very enthusiastic over your grading machine and do not hesitate to recommend it very highly to anyone.

Very truly yours,

CLARK-OLIVER APPLE COMPANY,
By (Signed) D. L. Oliver.

The Clark-Oliver Apple Company purchased two Four-Section Cutler Graders in 1917 which were equipped with ordinary belt sorting tables, and in 1918 purchased one of our Four-Section Models equipped with our new mechanical sorting table. Operating both types in 1918 under the same conditions showed a big saving in cost of sorting by the mechanical table.

The output reported above averages 1131 packed boxes based on a ten-hour day. This substantiates our claim that the working capacity of the Four-Section Model is from 800 to 1200 packed boxes in ten hours. This letter also indicates the reliability and staying qualities of the Cutler Grader.

Cashmere, Wash., March 15, 1919.
Cutler Manufacturing Company,
351 East Tenth Street,
Portland, Oregon.

Gentlemen: Replying to your letter asking for statement of our experience with your graders, we wish to say that we have used your graders for several years and have been very much pleased with the results obtained.

During the past season we have operated four of your graders—one four-section and three three-section machines—all of which gave excellent service. However, while we have been satisfied with the work of the smaller machines, we believe in packing houses where the output is considerable, that the larger type of machine is the more desirable, as our experience has been that its capacity is very materially in excess of the three-section type. Trusting that this will give you the information desired, we remain,

Yours very truly,

CASHMERE FRUIT GROWERS' UNION,
(Signed) C. C. Lemmon, Manager.

The Cashmere Fruit Growers' Union is noted for the orderly and systematic movement of fruit through their splendidly equipped packing house at Cashmere, Washington. Their experience concurs with our recommendation that large growers and packers should use our Four-Section or Big Four Models.

THE CUTLER GRADER IS MADE IN THE FOLLOWING SIZES:

For Box Packing:

2 section model—Handles 2 grades	18 bins
3 section model—Handles 2 or 3 grades	26 bins
4 section model—Handles 2 or 3 grades	36 bins
Big 4 model—Handles 2 or 3 grades	40 bins

For Barrel Packing:

1 section model—Handles 2 grades	8 bins
2 section model—Handles 2 or 3 grades	16 bins
2 section model—Handles 3 grades. Combination box and barrel	

WRITE TODAY FOR CATALOG AND PRICES

CUTLER MANUFACTURING CO. 351 East 10th Street, Portland, Oregon

List of Northwest Fruit Shippers

IN accordance with its custom from year to year BETTER FRUIT is publishing this month a list of the fruit-shipping organizations, companies and firms throughout the Northwest. The list this year, as far as we have been able to make it complete, is as follows:

NORTHWEST FRUIT EXCHANGE

Baker-Langdon Orchard Co., Walla Walla, Wn.
Bardwell Fruit Co., Medford, Oregon.
Bleakley Fruit Co., White Bluffs, Wn.
H. G. Bohlke, Dryden, Wn.
Brewster District Unit, Brewster, Wn.
Jas. H. DeVeue, White Bluffs, Wn.
J. L. Dumas, Dayton, Wn.
Entiat Fruit Growers' League, Entiat, Wn.
Gerrick & Gerrick, Dryden, Wn.
Clarence Hanford, Hanford, Wn.
Indian Cache Ranch, Lewiston, Idaho.
Israel Orchard Co., Dayton, Wn.
Jones & Day, Dayton, Wn.
Leavenworth Fruit Growers' Unit, Leavenworth, Wn.
Methow-Pateros Growers, Inc., Pateros, Wn.
Milton Fruit Growers' Co-operative Union, Freewater, Oregon.
Montgomery & Robinson, Dixie, Wn.
M. C. Moore & Sons, Walla Walla, Wn.
J. H. Morrow, Walla Walla, Wn.
Okanogan Growers' Union, Okanogan, Wn.
Omak Fruit Growers, Inc., Omak, Wn.
E. S. Phillips, R. F. D. No. 2, Cashmere, Wn.
Spokane Fruit Growers' Co., Spokane, Wn.
Stratford Orchards, Stratford, Wn.
Sunnyslope Fruit Ranch, Prosser, Wn.
Herbert Charles Taylor, Dryden, Wn.
Touchet-Gardena Fruit Co., Touchet, Wn.
United Orchards Co., Dryden, Wn.
Waitsburg Fruit Growers' Association, Waitsburg, Wn.
Walla Walla Gardeners' Association, Walla Walla, Wn.

Weiser River Fruit Association, Weiser, Idaho.
Wells & Wade Orchard Co., Wenatchee, Wn.
Wenatchee Apple Land Corporation, Quincy, Wn.
Willamette Valley Fruit Exchange, Monroe, Oregon.

GRANTS PASS, OREGON

Eisman & Hunt.
U. D. Mihills.

HOOD RIVER, OREGON

Hood River Apple Growers' Association.
Kelly Bros.
Hood River Fruit Company.
Lava Bed Orchard Co.
Dan Wuille & Co.
Willis Van Horn.
L. E. Ireland.
Davidson Fruit Co.

MEDFORD, OREGON

Stewart Fruit Co.
Denny & Company.
George Kaufman.

Rogue River Co-operative Fruit Association.
Rogue River Fruit & Produce Association.
Earl Fruit Co.
Guy Connor.
J. F. Barkdull.
Hillcrest Orchard Co.

YAKIMA, WASHINGTON

Roche Fruit & Produce Co.
Denny & Co.
R. L. Michaels.
Yakima County Horticultural Union.
Washington Fruit & Produce Co.
Ryan Fruit Co.
Hays Fruit Co.
Thompson Fruit Co.
C. M. Holtzinger.
Thompson-Duddy Co.
C. H. Stein.
Pennington & Co.
Congdon Orchards.
Selah Fruit & Cold Storage Co., Selah.
Thos. R. Robinson Co., Grandview.
Richey & Gilbert Co.
J. MacPhee Ferguson.
Pacific Fruit & Produce Co.
Yakima Fruit Growers' Association.
White Bros. & Crum.
J. M. Perry & Co.

Fruit Growers of Oregon!

*Stop gambling with your fruit—
Make your investment safe—
Broaden and stabilize your markets—
Get a better price for your fruit.*

The Oregon Growers' Co-operative Association

has organized with the following aims:

1. To nationalize Oregon's horticultural products under an Oregon label.
2. To gain wider distribution and thus prevent an over supply of fruit in limited markets.
3. To eliminate as far as possible the market speculator that stands between grower and consumer.
4. To raise the general standards of fruits so that they may sell for a higher price.
5. To stabilize the value of your investment by stabilizing your markets.
6. To eliminate waste caused by duplication of equipment in new fruit-producing centers.
7. To reduce growing and marketing costs, and to cut out unnecessary expenses of every nature.

This organization will be a business, owned and operated and controlled by and for you — the Oregon fruit producer. It is backed by the most prominent and experienced horticultural men in Oregon. Adequate financial arrangements are being concluded for handling of products.

The present list of incorporators include:

Isaac D. Hunt, Vice President Ladd & Tilton Bank; Seymour Jones, Salem, Oregon; J. O. Holt, Manager Eugene Fruit Growers' Association; Prof. C. I. Lewis, Chief Dept. Horticulture; E. L. Klemmer, Fruit Grower, Alvadore, Oregon; B. W. Johnson, Secretary Willamette Valley Fruit Exchange, Monroe; George Zimmerman, Yamhill Fruit Grower; W. E. St. John, Sutherlin, Oregon, Fruit Grower and Douglas County Commissioner; E. W. Matthews, Amity Walnut Grower; Earl Percy, County Fruit Examiner of Douglas County; Robert C. Paulus, Salem, Oregon, Chairman Organization Committee.

INCORPORATION CLOSING JANUARY 1, 1920

For further information address

EARL PERCY, Secretary

Oregon Growers' Co-operative Association
SALEM, OREGON

CALIFORNIA
SPRAY
CHEMICAL
COMPANY

WATSONVILLE
CALIFORNIA

Beautiful 10-Acre Tract

Seven acres in nine-year-old select apples. Located on David's Hill, two miles from Forest Grove, Oregon. Price \$4,000.

Address LOTUS L. LANGLEY,
Board of Trade Bldg. Portland, Ore.

For Sale or Trade

320 level acres, foothills, Southern California. No alkali or hardpan. Fruit and stock location, gravity water and good well, usual improvements, house and barn, etc. Ideal climate, elevation 3,000 feet. \$30.00 per acre. Write owner,

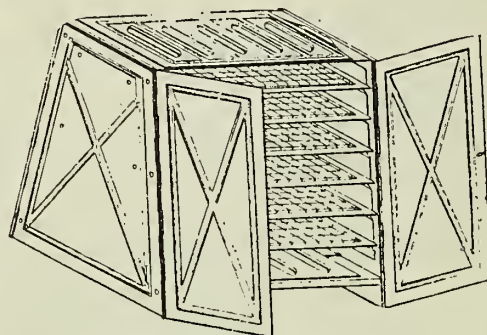
Box 211, Victorville, California

Dry Your Own Fruits and Vegetables

Imperative necessity demands nation-wide conservation of those portions of our food crops which have heretofore been permitted to go to waste. A considerable portion of this wasted food material is made up of perishable fruits and vegetables produced in home gardens and fruit plots in excess of the immediate needs of the producers, and in the absence of accessible markets for the surplus drying offers a simple, convenient and economical method for preserving food material and permits the carrying over of the surplus into periods in which fresh fruits and vegetables are expensive or unobtainable. Success in drying depends upon the observance of a few fundamental principles, and the quality of the product depends upon the care employed in the selection of the raw material, upon proper preparation for drying and upon careful control of the temperature employed.

In every district, no matter what the climatic conditions may be, drying by artificial heat has proven to be the most economical, quickest and most sanitary method of drying fruits and vegetables. We are therefore introducing our Home Fruit and Vegetable Evaporator. It is recognized by the best authority as being the most practical method of extracting water from fruits and vegetables that has yet been devised, and built especially for use on wood and coal-burning stoves and ranges, with the idea of utilizing their surplus heat.

It can also be used on gasoline, kerosene, gas and electric stoves by the aid of a deflector plate to spread the flame. This may be had at any hardware store by purchasing a piece of 18 or 20 gauge black sheet iron about 16x18 inches, according to the size or style of stove being used. These are not furnished with the evaporator, as there are so many different kinds and sizes of these stoves on the market that it would be impossible to make one deflector plate to fit them all. For instance, stoves having a cooking surface large enough so it would cover the entire bottom of the evaporator, a deflector plate large enough to cover the immediate flame would be sufficient.



THE HOME Fruit and Vegetable Evaporator

shown above is constructed throughout of Willsville polished blued steel except the six trays, which are made of six-mesh galvanized hardware cloth. It is 18x20 inches at the bottom and 12x20 inches at the top and 24 inches high. Shipping weight, 28 pounds. The six galvanized trays, which are 1/2 inch deep, comprise a drying surface of approximately 14 square feet. The back is made sloping for two reasons; first, it can be used on the ordinary kitchen range without interference from the high closet; second, it acts as a deflector of warm air as it arises from the stove, deflecting the currents through the trays, as it ascends, giving a perfect circulation and producing even drying.

The large slide drafts at the top and bottom permit the control of the amount of warm air and enable the operator to maintain an even temperature. There is not a bolt or nut in the Home Evaporator, it being held together by five tie rods fitting into pockets on either end; it is hinged on all four corners, and can be folded into a small space in a few seconds by anyone, enabling the housewife to put it away when not in use. By the use of the Home Evaporator a complete process of evaporation can be accomplished in three hours or more, depending upon the article being evaporated.

Price \$12.50 complete

You could not make a better investment at this season—send your order in direct from this advertisement, or if you want additional information

Write for FREE BOOK

"Best Methods of Drying"

This book has been prepared by experts. It tells: "The Possibilities and Limitations of Drying"—"The Fundamental Principles of Drying"—"Preparing Fruits and Vegetables for Drying." It tells how best to dry apples, pears, peaches, apricots, cherries, prunes, figs, berries, potatoes, turnips, pumpkin, tomatoes, sweet corn, beans, etc. Write today for this valuable book.

OUTWEST SUPPLY CO.

PORTLAND, OREGON

The E. E. Samson Co.
C. R. Paddock & Co.
Earl Fruit Co. of the Northwest.
Growers' Service Co.
Western Fruit & Produce Co.
Sunset Fruit & Produce Co., Wapato, Wn.

WENATCHEE, WASHINGTON

Cashmere Apple Co.
J. H. Ferryman.
Galletly Fruit Co.
Wenatchee Fruit & Storage Co.
Northern Fruit Co.
Puyallup & Sumner Fruit Growers' Canning Co., Puyallup.
G. M. H. Wagner & Sons.
Settles Commission Co.
United Distributors.
Wenatchee Apple & Warehouse Co.
Wenatchee Northern Warehouse & Marketing Co.
Wilmeroth Co., C. W.
VanHorn & Baker.
Geo. D. Bryan.
Dow Fruit Co.
Clark-Oliver Warehouse Co.
J. H. Garrett.
P. R. Gussman Warehouse Co.
Wenatchee Warehouse Co.
Pacific Fruit & Produce Co.
Rex Spray Co.
Sunny Slope Fruit Exchange.
E. Wagner & Son.
Wells & Wade.
Wenatchee Produce Co.
Earl Fruit Co.
Ryan Fruit Co.
G. B. Tribble.

CASHMERE, WASHINGTON

Cashmere Apple Co.
Cashmere Fruit Growers' Union.
Earl Fruit Co.
Prentiss Warehouse Co.
Wenatchee Valley Fruit Exchange.
Cashmere Fruit Distributors.
Cashmere Warehouse & Storage Co.
East End Warehouse Co.
Sullivan & Griner.

MONITOR, WASHINGTON

Clarke-Oliver Co.
Growers' Supply Co.
Monitor Fruit Sales Co.

DRYDEN, WASHINGTON

Dryden Fruit Growers' Union.

PESHASTIN, WASHINGTON

Peshastin Fruit Growers' Association.
J. O. Killian, Entiat, Wn.
J. W. Forsythe, Okanogan, Wn.
O. R. Bond, Orondo, Wn.

Bureau of Markets Chief Resigns.

Charles J. Brand, Chief of the Bureau of Markets, U. S. Department of Agriculture since its inception in 1913, has resigned, his resignation taking effect at the close of business on June 30, 1919. He will become vice-president and general manager of a commercial concern with headquarters at Pittsburg, Pennsylvania. George Livingston, a member of the bureau staff, will be designated to act as chief of the bureau until Mr. Brand's successor is appointed.

Mr. Brand has been with the Department of Agriculture since 1903 and had charge of the forage crop and paper plant investigations and the cotton handling and marketing work of the Bureau of Plant Industry before the creation in 1913 of the Office of Markets, which was afterwards made a bureau. Under his direction, the Bureau of Markets has grown from a dozen employes to a staff of about two thousand, located in Washington and other cities and at country shipping points and it has built up, under Mr. Brand's direction, a nation-wide news service for producers and distributors of farm products and has carried on many investigations for improving marketing practices and methods.

Efficiency and Advertising Bring Success

By P. R. Parks, General Manager Spokane Fruit Growers' Company

THE Spokane Fruit Growers' Company was organized in May, 1913, to fill the need of an orderly control in the handling of the apple crop from the orchards in the Spokane district, which were in the infancy of their production at this time. Large acreages of land had been set to trees and the disastrous results of disorderly marketing in 1912 brought forcibly to the minds of the growers the necessity of combining together and co-operating with each other in the matter of properly grading, packing, shipping and selling of this fruit crop.

A central office was established in

Spokane with various branches at the shipping points. It was believed that an efficient office force and clerical force could be maintained at one central point to transact the business of various small communities at greater economy and more efficiency than could be had through various small forces at shipping points, which were very likely to be untrained, and would be employed for only a comparatively short season each year. The wisdom of this judgment has been demonstrated year after year.

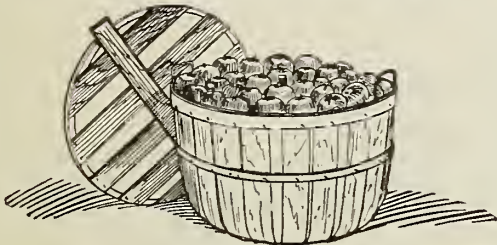
Strict grade and pack rules were adopted and enforced; labels were selected and registered in the patent office, and every endeavor was made to put the apple crop of the Spokane district on the market in such a manner as would create favorable comment and a lasting reputation. Reflections of these endeavors have been apparent, year after year as the company has become older, in the matter of greater demand for fruit packed under the company's brands and a stability of price. It is apparent that no organization, or any individual shipper, can hope to establish a place in the markets of the world without sufficient tonnage to attract attention and without following the policy of delivering quality product.

Notwithstanding the fact that the Spokane Fruit Growers' Company had made an enviable place for itself careful investigation and a survey of five years' operations convinced the Board of Trustees it would be wise to affiliate with other growers' organizations in a general movement to stabilize and unify the grade and pack and to advertise the Northwestern apple. Consequently, in May of 1918 application was made for membership in the Skookum Packers' Association and the entire crop, of those grades and varieties permissible, was packed under this brand in the 1918 season. Evidence at hand, in the nature of favorable comments and increased prices, has convinced the grower members beyond question that the money spent in advertising is returned at least three times.

There is but one solution for the Northwestern apple growers' problem, and that is the placing of a superior product in a superior package in order to enable him to command the higher price which he must have, considering freight charges, to meet the competition in the large Eastern markets offered by Eastern growers. That this can be done is fully demonstrated by increased demand for Northwestern boxed apples.

The grower of poor fruit and the shipper of the same must, and will be, relegated to the discard; his tenure of life is very short. Quality of fruit, honesty of grade and pack and superior services in shipping and selling, coupled with advertising, are the factors which will put the apple industry of the Northwest on a stable, dependable commercial basis.

Universal Bushel Shipping Packages



Will Pack One on the Other Without Injury to Contents

You can pack Universal Packages one on the other without the least possible damage to contents or the bottom package. In fact, 450 pounds can be rested upon the bottom package without fear of crushing or bruising fruit or vegetables therein.



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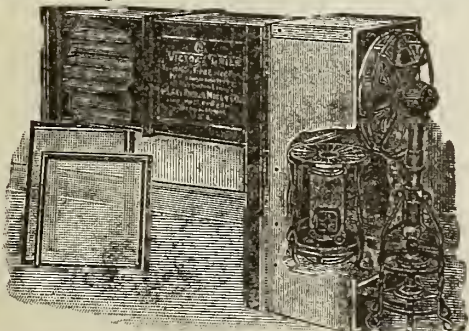
25c in coin or stamps will bring a Universal Package to your address. Get our Monthly Bulletin of interest to growers and packers. A postal brings it.

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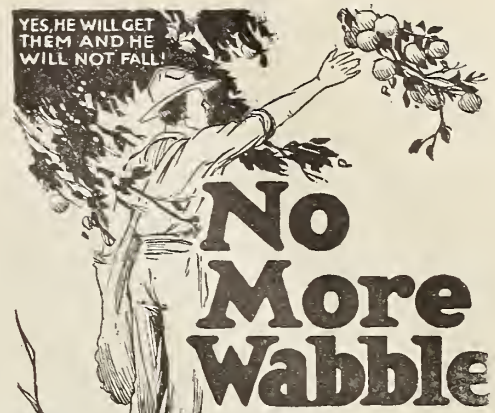
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For vegetables, fruit and seed corn. It saves time, labor and money. Foods preserved in **The Victory Drier** "taste just like fresh picked." The process is simple, easy and sure and the foods thus preserved are delicious and wholesome. This is the best and the only dehydrator of the type in the world. Scientific, proved. Run by a Kerosene fan. Ask for catalogue D 2.

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No More Wobble

—no more getting down to change the position of your ladder every half-minute! Get the

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"A Ladder with the Wobble left out" Bound and supported at every step by a patented steel cuff-bracket. Cuts your picking costs. Saves pickers time by enabling him to reach out farther and feel a greater sense of security; means a better day's work; reduces picking costs!

SECURITY cuff-brackets are made of two ounces of sheet steel, attached to each step-end and machine wrapped around stile (side-rail) by a patented process. Makes SECURITY ladders strongest where others are weakest; does away with cutting into and weakening stile to fasten steps in. SECURITY steps easily replaceable without weakening ladder. All wood vertical grain.

Most all big Sunkist orange growers use SECURITY; used in many orchards of Sacramento and San Joaquin; recognized standard ladder in big apple districts of the Northwest! SECURITY is the ladder YOU need NOW!

For sale by SECURITY dealers only. Write me; I will send you name of your dealer and new booklet on the SECURITY ladder. Write NOW!

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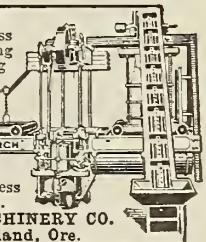
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SAVE YOUR APPLES

With a Monarch Hydraulic Cider Press you can turn your culls into good selling cider. You can also do custom pressing for your neighbors. Our improved high pressure construction gets all the juice from the apples with minimum power. All sizes of Presses, from 15 to 400 barrels a day. A small investment will start you in a profitable business. Ask for free, 60-page Press Catalogue describing our 1915 Outfits.

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Developing Local Market for Oregon-Grown Walnuts

By Knight Percy, Secretary of Western Walnut Association

THERE are no reliable statistics to be had of acreages of nuts planted in Oregon. During the last four years the writer has roamed around among the nut orchards considerably, he has read all items concerning nut orchards that have come to his attention and he has talked nuts with everybody who would talk on the subject with him. In this manner he has learned of the whereabouts of many orchards. The acreage, ownership, age and other data covering the orchards have in every case been carefully recorded. No claim is made that these records are complete, but until someone presents a more complete set of statistics I shall consider them the most complete available for the state.

My records show some 6,100 acres of walnuts planted in Oregon. Whatever plantings that are not here covered are probably largely small ones scattered about in districts where walnuts are not widely grown. I am of the opinion that a complete survey of the situation would show close to 8,000 acres in the state.

I have the ages for about 4,400 acres of the above; 927 acres are between one and five years of age; 3,116 between six and ten; 226 between eleven and fifteen, and 160 over fifteen years; 5,300 acres are tabulated according to county. Yamhill leads the state with 3,162 out of the 5,300. Marion is second with a little over a thousand acres. The records in this county are the most complete that I have, as they were largely taken from a survey of the orchard plantings made by Mr. Van Trump, county fruit inspector of that county. Washington has 441 acres; Polk, 402; Lane, 227, and Linn 105.

The tabulation according to age indicates that about 70 per cent of the plantings are between 6 and 10 years of age. In other words, some 70 per cent of the total plantings of the state are at the age where they are coming into bearing and rapidly increasing their yields. Quite a per cent of these are trees grafted from varieties that tend to come into commercial bearing at an earlier age than does the average seedling orchard.

The thought probably comes to many that a large part of these orchards will never come into commercial bearing. I am well enough acquainted with 3,500 acres in the state that I have undertaken to forecast their futures and to tabulate them accordingly. From this tabulation I have reached the conclusion that about 60 per cent of the total plantings of the state will in time average 800 pounds and over per year. About 25 per cent are worthless commercially and the remaining 15 per cent will yield an average of 400 to 500 pounds annually.

Clarke County, Washington, which is tributary to the same local markets as we are, has 7,136 walnut trees, according to a local survey.

Seventy-five thousand pounds covered the walnut production of this state in 1917. In 1918 the production was probably more than 200,000 pounds, and it will continue to double each year for several years to come and to increase annually for many years, as more plantings are going in every year. Those who have had marketing difficulties with walnuts during the last few years can imagine where we will be within a few years in case we continue to re-

main unorganized and to undertake to grade and market our nuts as individuals.

A Portland nut broker, who is in a position to know, informs me that the annual consumption of the territory for which Portland is the jobbing center is as follows: Eight to ten cars Manchurian walnuts; twenty cars unshelled walnuts (other than Manchurians); 24,000 pounds (one car) of chestnuts; 150,000 pounds unshelled almonds;

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THOUSANDS ARE ADOPTING

REX DRY PASTE

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Smooth as silk — Will not stain or sour — Wonderful sticking qualities
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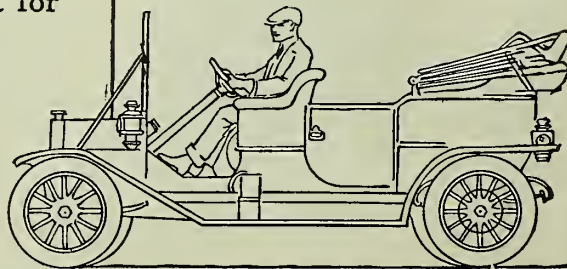
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—because Zerolene meets with scientific accuracy the lubrication needs of the car. It is refined from selected California crude oil. Deposits least carbon. Get a Correct Lubrication Chart for your car.

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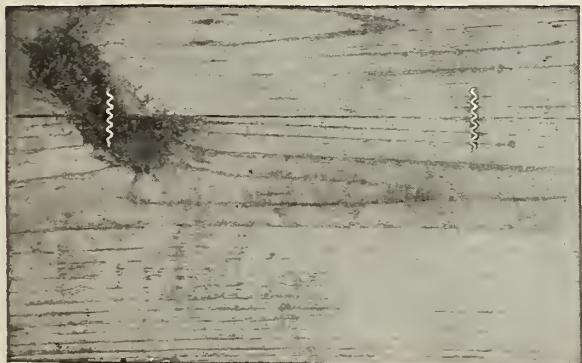




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Make Strong 2-Piece End Boxes.

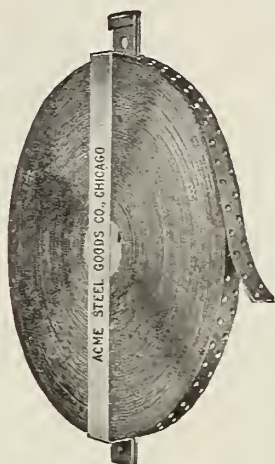
Acme Patented Divergent Saw Edge Fasteners will not pull out and holds better than cleats or glue.



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Specify ACME CORRUGATED JOINT FASTENERS.

ACME STEEL GOODS CO., Mfrs.

Works: 2840 Archer Avenue, CHICAGO

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PROMPTLY, ACCURATELY AND ECONOMICALLY
WE PRINT BETTER FRUIT

F.W. BALTES & COMPANY
PORTLAND, OREGON

30,000 pounds shelled almonds; 40,000 pounds unshelled filberts; 6,000 pounds shelled filberts. If the Portland territory consumes this amount of nuts it is safe to say that the Seattle territory consumes at least an equal amount and that the Spokane district gets away with 30 to 50 per cent of this amount. This territory logically belongs to the Oregon growers.

It is certainly worth our cultivation. It will be our chief market, of necessity, until production increases and the growers pool their products so as to be able to take advantage of carlot freight rates. We cannot compete with California and Europe in the Eastern markets until we can ship in carlots. Even then we should confine our selling to the local markets until they are consuming Oregon nuts to their full capacity. Selling in distant markets means increased freight rates, increased advertising costs and increased selling costs.

However, the fact that this is our logical market will not bring the market to us without effort on our part. The market must be intelligently developed. The jobbers are in the habit of buying from California or from brokers who handle imported stuff. It will take time and effort to break these habits. We cannot do this as individuals unless we are willing to cut considerably under the selling price of California nuts, and price cutting is a poor business.

Oregon walnuts, when they fall off the trees, have no superiors anywhere, but too often by the time they have reached the market their condition justifies their classification as culls or seconds at best. This may be due to ignorance, carelessness or to lack of facilities in harvesting, curing and grading.

Big sales are the cheapest ones. There is more net profit to the grower in selling a carlot at 30 cents than in hawking a crop about in fifty-pound lots at 30 cents. Few of our individual growers are or ever will be able to sell in carlots. The few growers who may be able to ship in carlots and who are turning out a high quality of product will have difficulty in selling to the big jobbers, since these jobbers feel that they have no reliable guarantee as to the grade of the nuts as they have in buying California stuff. There is no

FRUIT GROWERS

Can't Afford the Loss of Bruised Fruit Picked in Ordinary Bags or Buckets when they can

SAVE THIS BIG LOSS BY USING

Palmer Picking Buckets

Which are LABOR and FRUIT SAVERS and Useful for Many Purposes.

Prices { Single Bucket....\$1.50 } Special Prices on Large Orders
 { In Dozen Lots 1.15 }

Send your order with remittance to

HOOD RIVER FRUIT COMPANY

Bucket Filled

HOOD RIVER, OREGON

Bucket Emptied

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT



standard of grading used by any great number of growers over the state.

Necessity will in time force the walnut growers to organize. It has been the history of co-operative organization that growers have refused to organize until necessity, in the form of several years of disastrous returns, has forced the individuals to join hands in the formation of an efficient sales organization. Indications are now that the walnut growers of Oregon will enter the big co-operative fruit growers' association that is being organized and secure the proper marketing facilities for their rapidly-growing output.

Northwest Fruit Notes from Here and There

Yakima Valley Fruit Growers who have made a success of dehydrating apples are now experimenting in drying pears. They have commissioned Ira D. Cardiff of the Washington Evaporated Fruit Company to go to California and investigate the most improved methods of drying pears.

The Hood River Canning Company announces that it will make a departure from the usual custom in handling cherries of the Royal Ann variety. This year a large part of the cherries to be handled by this company will be packed in barrels. Members of the company say that they are satisfied cherries marketed in this way will find a ready demand.

The Wittenberg-King Company of Portland, which has made a marked success in dehydrating fruits and vegetables, has recently invaded the Warren, Oregon, district and contracted for 100 acres of strawberries for four years. Fruit growers in this section are reported to be well pleased with the deal, as it secures for them a stable price for several years.

High prices for fruits are now reported in the Yakima Valley. The going price for cherries during the past month was raised by degrees to 13 cents a pound and a large number of sales in big quantities were made at 12 cents. One grower reported the sale of his Bing cherries at 16 cents. It is said that \$2 per box has been offered in the Yakima district for Jonathans, orchard pack. Prices of peaches will run up to 80 cents per box, while pears are being bought at \$50 per ton, according to these reports.

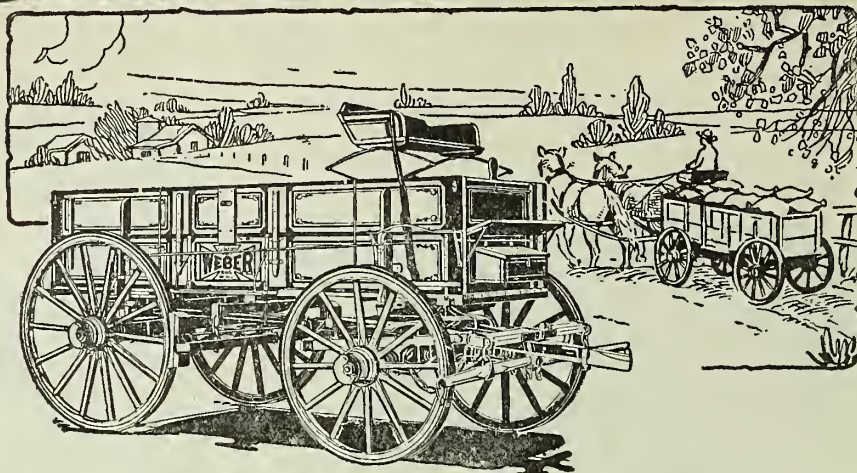
Lane County, Oregon, owners of Evergreen blackberries until recently had refused to contract their crops. Last year was the first time that a crop in that district was generally harvested. More than \$72,000 was realized from the fruit which had been allowed to grow wild. In 1918 the crop was harvested by University of Oregon students and high school girls, who picked over 900,000 pounds of these berries, which were canned.

Under the direction of the U. S. Department of Agriculture, a survey of farm and orchard conditions is now being made in Jackson County, Oregon. The survey is being made by Miss Anne McCormick, who states that she is meeting with cordial co-operation from the rural residents of the community.

A complete soil survey is now being made in Josephine County, Oregon, by Mr. Kocker of Washington, D. C., and E. F. Torgeson of the Oregon Agricultural College. While the work is said to be progressing as rapidly as possible it will take three months more to complete the task. When finished, the different soils of the county will be classified in the individual sections.

Reports from Grants Pass, Oregon, are to the effect that that district has gone safely through the frost period and that the grape crop, which was at first thought to be damaged, promises to be the largest in several years. In fact, a bumper crop of fruit of all kinds is expected in the Grants Pass district.

Believing that the climate and soil of the Marshfield and Astoria districts of Oregon are well adapted to the growing of fruit, particularly the growing of berries, the Chambers of Commerce in these places have made arrangements with prospective growers to market their crops and they are planting a large acreage to



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BEAR this point in mind the next time you buy a wagon—**Columbus and Weber wagons are guaranteed to stand up under capacity loads.** You don't have to be a wagon expert to buy a **Columbus or Weber** wagon safely. All you really need to know is the weight of your heaviest loads. Buy a wagon marked to carry that load and we guarantee safety and satisfaction.

Ask any dealer who carries **Columbus or Weber** wagons to show you just what we mean by this statement, or write to us for full information. Our wagons have many good features—the International fifth wheel, the sandboard wear plate, link end rods, folding end gate, superior material—more features than you will find on any other wagon. All these help to give the good service, long life and economy that you get with **Columbus or Weber** wagons. The same high standards of quality and satisfaction apply to all the machines in the list below.

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Just Like Having a Big Policeman to Guard Your Property!

Trespassers cost you many dollars each year. They break down fences, steal your fruit, kill your poultry and livestock. Our TRESPASS signs will keep them out. They are printed on oil-treated tough cardboard—absolutely rain and sun-proof. Will last for many years. Each sign is 14x11 inches, and they will keep the trespassers out just as effectively as if you had a big policeman on each side of your farm to guard your property.

Six Big Trespass Signs for \$1

Postpaid—12 for \$1.75

Send today for a supply of these signs and tack them up in conspicuous places along the line fence. Six guaranteed sun-proof and water-proof signs (as illustrated above), size 14x11 inches, mailed, postpaid, for \$1.00, twelve signs, postpaid, for \$1.75.

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PORTLAND, OREGON

No "holes" in it



The Gasoline of Quality

Red Crown's uniform chain of boiling points gives easy starting, quick and smooth acceleration, high power, long mileage. Mixtures have "holes" in the power chain. Look for the Red Crown sign before you fill.

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(California)

berries. The Chamber of Commerce at Marshfield has agreed to erect a cannery there if the farmers of that district will plant 250 acres to berries.

While unfavorable weather conditions cut down the estimated tonnage of 115 cars from the Hood River district, over 60 cars of berries had been shipped by the Hood River Apple Growers' Association up to June 20th. Although the yield was cut down considerably by extra cold nights and rain, the fruit produced was of a very large size. The outlook for canning strawberries from the Hood River district, it is stated, is not favorable. This, it is said, is due to the high price at which fresh fruit was selling, the majority of the shipments bringing \$4 per crate.

A dividend of over \$100,000 which was recently made available to members of the Hood River Apple Growers' Association, more than convinces them that co-operative methods of selling apples is successful. The amount which will be paid Hood River growers in dividends is money that has been saved on the estimates made for covering the handling and marketing of their fruit. An interesting statement in connection with the payment of this dividend, contained in Manager Stone's report, is that, notwithstanding the heavy increase in the cost of labor and materials used by orchardists, and all other requirements, the charge to the grower has remained the same during the six years that the association has been organized.

Although Yakima fruit workers lost in the strike which they organized last fall for recognition of their union and a higher wage scale, they have adopted a new schedule for 1919. They are now endeavoring to obtain agreements with fruit growers and warehouse men before the season opens. The 1919 scale, as proposed by the union, is as follows:

Common labor—55c per hour.

Packers—6c where sizers are used and 7c with tables, on apples and pears; 3½c per box for peaches; 7c per box for prunes.

Box making—\$1.25 per 100 boxes for two-piece work and \$1.35 per 100 for three-piece work on apple and pear boxes; 80c per 100 for peach boxes; \$1.25 per 100 for "suit cases."

Lidding—\$1 per 100 for three-strap lids; 5c added for each additional strap—these prices for apple and pear boxes; 70c per 100 for peach boxes.

Transportation to be furnished, or paid for, where the work is out of the city.

The fruit-thinning situation, which promised to be serious in the Medford district, was finally adjusted and orchardists very materially assisted by women and girl workers who volunteered for the work. Orchard and ranch hands, however, are said to be still needed very badly in the Medford district.

Reports from Hood River are to the effect that more pears than apples are being set in the new acreage that is being planted to fruit in that district. The varieties that are being planted are d'Anjous, Bartletts, Bosc and Comice. Gordon G. Brown, horticulturist at Hood River Experiment Station, recommends the planting of Winter Nelis for pollenizers. The high price received for pears in the Hood River district is said to be influencing orchardists to plant pears instead of apples.

Grays Harbor County will have a bumper yield of apples this year, according to Mr. O. T. McWhorter, County Agent. The trees are said to have budded well and to have received no injury from the frost.

The Sunnyside Cannery, which has not been operated for a year or two, it is now reported, will be opened for business this year. The management of the cannery will be under the direction of Edward Hewes, manager of the Sunnyside branch of the Yakima Horticultural Union. The new canning venture is being backed by the Younglove Company, who have become owners of the plant and will have new machinery installed in time to handle the peach crop this season.

On account of lack of pollination, the cherry crop in The Dalles and Mosier districts of Oregon will be short this year, according to reports from that section. Apples in the Mosier district, however, are said to be in fine condition and are expected to surpass anything in former years in the way of quality and tonnage.

Quick action by a determined group of Hood River strawberry growers stopped a recent strike among berry pickers. Organizing themselves into what they called a body of "vigilantes," the growers went to the camps of

a number of pickers who had been visiting ranches in that district and endeavoring to get the pickers to strike and ordered them to leave the valley. The strike agitators were at first defiant, but later, before the determined stand of the growers, consented to go back to Portland. The pickers were receiving 12 and 13 cents per carrier and a good picker could earn as much as \$4 per day. The strikers were demanding 15 cents per carrier.

What They Are Doing in California

The California State Industrial Welfare Commission recently issued an order to the effect that women workers engaged in the preparation of fruit and vegetables in canneries must be paid at the rate of not less than 28 cents per hour. The order is said to affect 20,000 women who are working in the California canneries; it provides that no women or female minors may be employed in the canning industry at a rate of less than \$13.50 per week.

It is reported that the largest almond orchard in California will be planted next season. The orchard will be 750 acres in extent and will be set near the Oakdale district by C. W. Klough of San Jose.

Warnings were recently issued to the orchardists of California by G. H. Hecke, State Commissioner of Horticulture, in regard to an invasion of grasshoppers. These insects, which are reported to be very numerous this year in many sections of the country, have been giving California orchardists a good deal of trouble. They are now endeavoring to get rid of them by a poison mixture that was recommended by the State Horticultural Commission.

The canning season for apricots in California opened June 15th and the output of this fruit from that state this year is expected to be the largest in its history.

It will be interesting for Oregon fruit growers to know that California has what is known as a Housing Act which is designed to regulate housing conditions for help employed by the fruit growers in that state. In order to conform with this act, the Valley Fruit Growers' Association of the San Joaquin Valley recently raised a fund of \$20,000 to improve the conditions of its community labor camp.

Notwithstanding the uncertainty of the wine grape growing industry in California, a 20-acre vineyard in the San Joaquin Valley recently sold for \$1,000 per acre.

One of the most profitable fruits in California during the past season was the grape-fruit. The demand for this semi-tropical fruit is said to be steadily growing and larger acreages of it are being planted in several sections of the state.

Sixty-four thousand dollars was recently paid for a 150-acre peach orchard in Merced and Fresno Counties. Another fruit orchard containing 400 acres of peaches, apricots and prunes sold for \$250,000.

Fruit growers in the Imperial Valley are organizing a movement to prevent alien tenancy of lands in that section. The growers call the movement an Americanization program. It is said that at the present time there are about 25,000 acres in the Imperial Valley that are owned or controlled by Japanese or Hindus. About 50 per cent of the Hindus are reported to have recently moved to the Salt Valley in Arizona, owing to the opposition in California.

A fig tree growing upon Chas. O'Neil's place near Oroville, California, is said to be the largest yet found. The trunk of this tree measures 8 feet in circumference and it has a branch spread of 65 feet. It is estimated that the tree is about 68 years old.

Now that prices for all varieties of fruit in California, as well as elsewhere, are jumping up by leaps and bounds a good deal of dissatisfaction is reported among the growers in the San Joaquin Valley who have long-time contracts with packers and canners. The growers claim that the advance in the price of labor and other items leaves them with little, if any, profit from the year's business. The contract grower is now said to be selling his fruit for \$35 per ton, while the open-market price is around \$70. Many of these contracts, it is reported, were made at \$22.50 to \$25 per ton. Growers are of the opinion that their contracts should be revised upwards.

In a talk on the benefits of co-operation among fruit producers recently made by Col.

"Black Leaf 40"

CHANGE IN PRICES Effective June 1, 1919

We fully realize that a change in the selling prices of a standard commodity like our "Black Leaf 40" causes very considerable inconvenience to all parties in interest. It has long been our custom to "take the general-average" of profit over a period of years—rather than to make more frequent changes in price, in direct proportion to varying conditions in the cost of manufacture, etc.

In this connection, you will probably recall that no advance was made in our prices for "Black Leaf 40" during the entire period of the recent War—a circumstance that was happily aided by the fact that we had accumulated some surplus stock of nicotine, thereby the better enabling us to absorb part of the increasing costs which we had hoped would be merely temporary.

However, the heavily increasing demand for "Black Leaf 40" has so reduced this surplus, and the present conditions relative to raw material, labor, supplies, etc., are such that we regret we must announce the following change in our prices, effective June 1st, 1919:

10 lb. tin	\$13.75 each
2 lb. tin.....	3.25 each
1-2 lb. tin	1.00 each

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INCORPORATED
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"I have sawed through five-foot solid oak logs at the rate of one foot a minute."—N. P. Myers, Laton, Calif.

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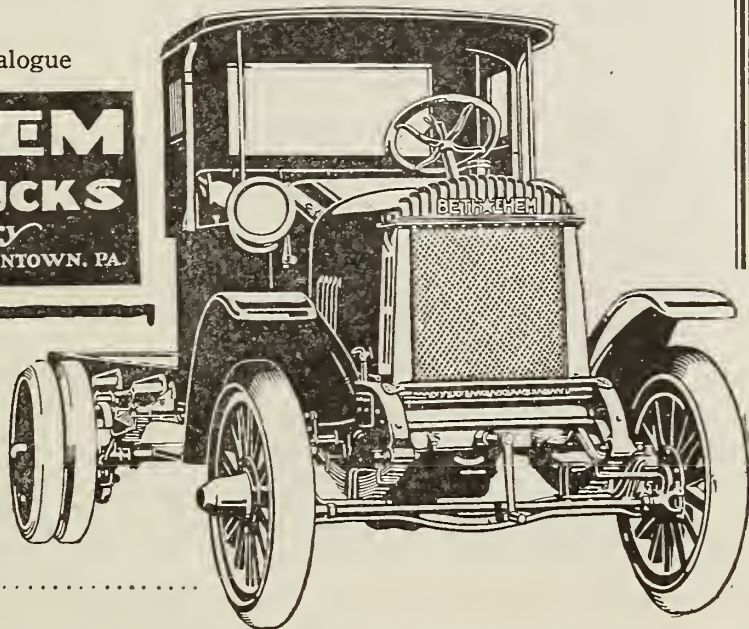
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Codes: A. B. C. 5th Edition and Modern Economy

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

Weinstock, State Market Director of California, at a banquet tendered him at the Arlington Club at Portland, he made some statements that are startling. Col. Weinstock, who was instrumental in the organization of the big fruit-growers' associations in California, said that before the growers were organized only seven and one-half cents of the consumer's dollar went to the producer. "The organization of the co-operative fruit-growers' associations in California," Col. Weinstock said, "has changed the entire face of the country, whereas in 1914 many horticultural industries were in such a condition that land values had dropped to a point where prices were based upon the value of the raw land less the cost of pulling up the trees and vines, when the producer was receiving less than cost of production and was virtually bankrupting—in 1918 every horticultural industry in the state has been stabilized, the producers are receiving a fair profit for their products and a consumer demand has been created through national advertising far exceeding present or future potential production."

Bits About Fruit, Fruitmen and Fruit Growing

Predicting one of the best export markets for box apples in many years, J. Oliver of London, England, who has been touring the Northwest apple-growing districts in the interests of Dan Wuille & Co., British apple importers, recently left for New York City to said for England. Mr. Oliver expects that there will be a steady demand for export apples from harvest time until the apple-shipping season closes. He stated that he had never known prospects for the apple trade to be better than they are at present. Mr. Oliver said: "Transatlantic freight is now 85 cents a box, with plenty of space offered, and I expect the freight rate to go lower. Before the American apple-shipping season comes on England is expected to repeal the Price Control Act, which will result in fruit of fine quality being sold for a better price."

Mr. A. Moomaw, foreign representative of the Hood River Apple Growers' Association and other similar apple-growing industries in the Northwest, while on a recent visit in this section, stated that the most alarming thing for the exporter at the present time is the proposition that has been advanced in England to license dealers in the large cities, with an idea of limiting them to a certain allotment of export apples at one time. Dealers generally in England are reported by Mr. Moomaw to be organizing to oppose this plan.

In an address recently made before a representative audience of Yakima fruit growers, J. B. Adams, chairman of the Horticultural Committee of the Seattle Chamber of Commerce, stated that there should be a good market this year for Northwest apples in France and Belgium, in addition to the Australian and Philippine markets. The orchards of the two former countries mentioned, according to Mr. Adams, have been destroyed and they must look to America for their deciduous fruits this year. Mr. Adams also stated that he expected the greatest development in the Northwest fresh-fruit industry to come through shipments of fruit to Europe on ships that would sail from the Pacific Coast via the Panama Canal. The saving in freight rates, he said, would be a big help to Northwest apple growers.

Through arrangements that were recently completed the New Phez Company of Salem, Oregon, formerly known as the Northwest Products Company, has entered the Wenatchee field to secure fruit products. Negotiations have just been closed providing for the taking over of the H. E. Farwell plant. It is the intention of the new owners of the plant to use it in the manufacture of cider, jellies and preserves. The company is now contracting for cull apples for the coming season.

The American Fruit Growers, Inc., which has recently been purchasing large acreages of fruit on the Pacific Coast, has entered the Wenatchee, Washington, district and has just purchased a 124-acre orchard in the East Wenatchee section, for which it paid \$100,000 cash. The yield expected on this tract this year is between 40,000 and 50,000 boxes of commercial apples. The purchase included the entire equipment of the place. In addition to their operations in the Northwest, this company has just completed a deal for the purchase of 287 acres of apple orchard in West Virginia, including 200 acres of bearing trees and 87 acres in three-year-old trees. It is also reported to have bought orchards at Florrie Dale, Pennsylvania, and in several sections of Virginia.

Several weeks ago the company bought large citrus groves in Florida and recently also bought extensive deciduous fruit-producing acreages in California. Its total investment in orchard property this year is reported to be over \$1,000,000. The American Fruit Growers, Inc., is also reported to be interested in the recent merger of big deciduous and citrus fruit interests representing a capitalization of \$200,000,000.

Notwithstanding the reports that have been going the rounds that many contracts have been made in Washington by buyers of apples, it seems now that most of these offers have been tentative. In the Wenatchee district, while some offers have been made and a few contracts signed for this year's apple crop, most of the negotiations along this line are still in the preliminary stage. Growers in many sections of Washington are reported to have discussed the situation and formed opinions as to the prices that they will hold out for. It is said that in many cases these prices are beyond what any of the buyers now in the market are willing to pay. Most of the established local apple-buying concerns have thus far declined to make a definite offer for apples upon any basis whatever. They give as their reason that it is too early to anticipate the market and do not care to begin contracting until they are able to form an intelligent idea of the size and character of the apple crop. The schedule of prices that some of the growers are reported to be holding out for in the Wenatchee district is as follows: Winter Banana and Delicious, \$3.50; Spitzenberg, \$3; Winesap and Jonathan, \$2.50 to \$2.75, and Rome Beauty, Stayman and Yellow Newtowns, \$2.25 to \$2.50.

Sgobel & Day, big New York apple dealers, who are well known throughout the Northwest, have recently been granted permission by the Secretary of State to increase their capital stock from \$75,000 to \$200,000. During the past few years Sgobel & Day's business has reached very large proportions. This firm in 1918 did a business of over \$4,000,000. It is interesting to know that during the war-loan campaigns Sgobel & Day bought \$110,000 worth of Liberty bonds.

Reports received from reliable sources are to the effect that a heavy freeze which hit the Colorado fruit-producing districts in the early part of June did an immense amount of damage. A cold wave which prevailed for three days forced the temperature down at some points to 20 degrees above zero. In Montrose and Delta Counties the apple crop is estimated to have been damaged fully 50 per cent, while in other districts peaches, small fruits and vegetables also were hit by the heavy frost.

Appreciates Better Fruit

W. E. White & Co.
Newberg, Oregon.
Better Fruit Publishing Co.,
Portland, Oregon.

Gentlemen: Your circular letter this morning's mail reminded me that I had not subscribed for your valuable publication as I told Mrs. White I would do. We thank you for the sample copy and we consider the April number alone worth the price of a year's subscription. I used to be a subscriber when this was published in Hood River, but dropped it for a time intending to renew again. This magazine was good from the start, but I believe it is better now and all fruitmen in the Northwest should be subscribers. Some men ought to be compelled to read this paper and then carry out the conditions laid down.

What has become of the Oregon law compelling orchardists to spray and prune their trees? For a while this was pushed and some old scaley trees were grubbed out, but since then it seems to be a dead letter and we see orchards that to all appearances were never trimmed or sprayed. I am not a large grower at the present time, but I try to care for my trees, and I cleared the land and developed one of the nicest small prune orchards in this country and am putting out more orchard each year. We are making some money out of Valley apples by taking care of the trees and young fruit, but yet hundreds of bushels of nice apples rot on the ground in this country every year. Our juice plant here shipped in ten cars of apples from Hood River last season.

Wishing you success in your future work I am enclosing you my check of \$1.00 for a year's subscription to BETTER FRUIT. I want the next issue, May number, but you may date my year from April 1st, for that number was just what I was wanting to get instructions about caring for my trees.

Yours respectfully,
(Signed) W. E. WHITE.

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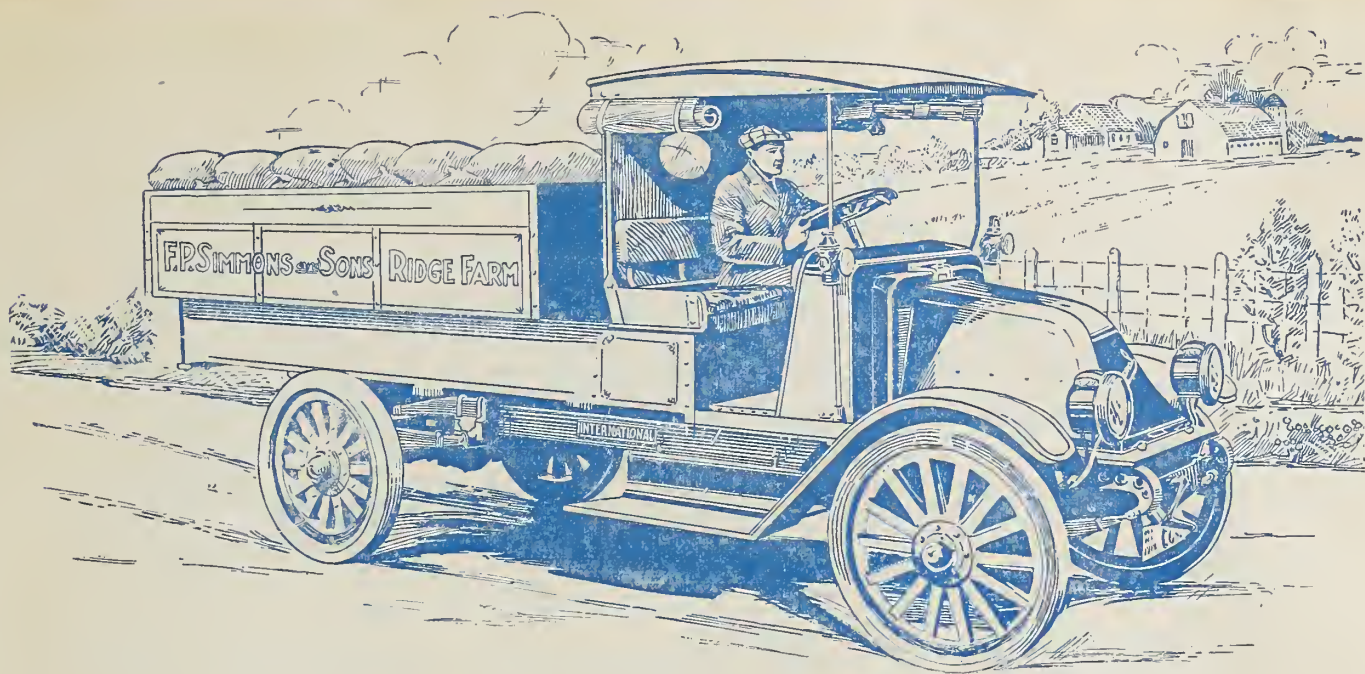
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